AN EVALUATION OF THE EFFECT OF VOID ON RESIDENTIAL REAL ESTATE INVESTMENT RETURNS IN ABUJA, NIGERIA

BY

EMMANUEL OLORUNTAYO

M.TECH/SET/2018/7786

DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE, NIGERIA

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ABSTRACT

Void in residential properties within the federal capital city of Abuja is of concern to stakeholders in real estate market and government. Residential real estate investment is ventured into with expectation of having profitable returns on the huge capital outlay through income of rent or outright sale. However, rent expectation is usually jeopardised by void which occurs in the economic lifetime of the property. This study investigates the effect of void on residential real estate investment returns. Population of the study are the practicing Estate Surveying and Valuation Firms that operates within Abuja Federal Capital City (FCC) which is 171 firms according to the NIESV directory 2021 and Real Estate Agents with 388 members according to AEAN Abuja Chapter, making the total of 559 population size. 227 was adopted as sample size for the study area. Data were collected using questionnaire and observation method, opinion on factors responsible for void and the effect were gathered. Data on void within the period of 10 years (2011 – 2021) on each property were collected and analysed. The study findings revealed that the bigger the residential accommodation the longer the void period within the study area. High rent was discovered to be the most significance factor responsible for void in the study area while landlord loss of rent is the principal negative effect of void followed by loss of revenue by the government and reduction of property value. The rate of return (yield) of the residential properties in the study area ranges from 4.7% (1bedroom flat), 4.0% (2bedroom flat),4.1% (3bedroom flat), 4.3% (4bedroom flat), 4.0% (bungalow), 3.7% (Duplex) and 3.9% (Manson and Townhouse). The rate at which void affect the investment returns of the residential real estates in the study area are as follows: 1bedroom flat 8%, 2bedroom flat 24%, 3bedroom flat 30%, 4bedroom flat 34%, bungalow 33%, duplex 39% and others (mansion/town house) 55%. The study concluded that void is therefore a major risk in residential real estate investment within the federal capital city of Abuja as it is capable of affecting returns negatively. The study recommended certain measures to be taken in order to address the menace of void, such measures include downward review of rent, imposition of tax by the government on void properties and professional advice in residential real estate investment decisions particularly, determination of rent and sales price.

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CHAPTER ONE

1.0   **INTRODUCTION**

1.1 Background to the Study

A void period occurs whenever property is empty, vacant or untenanted and generating no rental income. Void will happen to most landlords during the lifetime of their investment. Void periods are foreseeable, frequency or prolong void durations can have negative effect on the viability of residential real estate investment. Wherever void occurrence is high at the property market, the actualization of investment objectives seems rather unattainable (Oladokun 2011). Many property experts agree that landlords should never take for granted that their property will always be occupied.

Growth in the population of Abuja Municipal in the past years has resulted to acute shortage of accommodation for the populace. Consequently, rent for residential properties are excessively on the high side. Investors has realised the existing huge gap in accommodation provision within Abuja city which brings about massive residential real estate investment for different types of accommodation.

Property market in Nigeria has been overtime designated as consisting great prospects yet to be explore in which only government cannot provide the required housing (Akeju, 2007). Housing necessity is of topmost significant asaverage human being would prioritisehousing before concentrating on other important needs like safety, love and affection, the esteem and self actualisation need (Maslow, 1943). The involvement of private developers, corporate organisations and individuals in residential real estate investment within the study area are obviously driven by high return expectation. Residential real estate investors are often challenge

with void as re-letting of vacant apartment takes longer period in the recent times and in many cases newly completed residential properties also experience void.

There are various opinions as to factors responsible for void. Akalemeaku and Egbenta (2013) opines that non-use of relevant professionals in real estate development is the main cause of void in residential properties. Remoy (2010) posit thatvoid has to do with the duration in which a property is vacant and the fact remains that irrespective the length of void, whether weeks, months or years, it has direct effect on the revenue of landlords, property developers and managers. According to Oladokun (2011) factors that are responsiblefor unoccupied estates, or residential properties in the cities, include high rent, litigation and non-payment of mortgage from financial institutions, forfeited houses by court order and inadequate infrastructure".

This research focuses on evaluating the specific factorscausing void and the effects on the residential real estate investment in Abuja.

1.2 Statement of the Research Problem

Residential real estate investment is ventured into with expectation of having profitable returns on the huge capital outlay through yearly income of rent or outright sale. However, rent expectation is usually jeopardised by void which occurs in the economic life time of the property.

Unoccupied houses have become an obvious issue particularlywithin Abuja Municipal in recent times with some of the void estates constituting danger and hideout for suspected criminals in locations where void is prevalent.

The unoccupied residential properties are located within Federal Capital City of Abuja where occupancy rates are supposed to be extreme but to the contrary Abuja residents mostly civil servant tends to be concentrated at the Abuja suburbs, distance villages and neighbouring states.

Void in residential properties within Federal Capital City of Abuja is worrisome and of concern to stakeholders in real estate market and government. Void within residential estates in Abuja where large population of workers in both public and private sector have no residential accommodation with huge housing deficit is a challenge that brings about negative effects to the estate owners/ investors, estate surveyors and valuers, mortgage / real estate financing institutions, government and the populace.

Void properties affect property owner in many ways namely; non-financial return in form of rental loss, physical depreciation resulting in high maintenance cost, default in loan or mortgage repayment plan and depression. Void in residential real estate investment constitutes threat to the neighbourhood as it usually served as hide out for criminals and illegal occupants, fire and security risk. Once void occurs, the Estate Manager such as Estate Surveyor and Valuer will not be able to earn fee on the void property rather resource will be channeled towardsre-letting. Municipal / government losses revenue on void property as tenement rate are usually levied and demanded from occupied properties.

The research is to evaluate the factors that are responsible for void and the effect on residential real estate investment within the study area.

1.3 Justification of the Study

Void occurrence in residential properties in Abuja Federal Capital City and its consequences on investment returns has made this research necessary. Generally, real estate investment is capital intensive, often financed by mortgage / loan and equity in which the repayment plan is hinge onthe future returns in form of rental income which is unachievable when the property is void. Even though relevant research has been carried out on the menace of void properties and management of same around the world, research has been limited on causes and management of void. Oladokun (2011) worked on property void and ethnic differentiation; Akalemeaku, O. and Egbenta (2013) researched on approach to better management of void in residential properties; Remoy (2010) research on the factors responsible for office accommodation vacancy and transformation as a solution to manage and prevent. Gabriel and Nothaft (2011) worked on the analysis of the duration and incidences of vacancies in multi-family residential properties. This research differs from the past similar work as it tends to establish effects of void on the residential real estate investment. This research will establish the causes of void and the effects on the residential real estate investment in Abuja for sustainable development. More so, this research is necessary to prevent the prevailing void rate in residential real estate investment in the FCT, Abuja.

1.4 Aim and Objectives of the Study

This study aim is to evaluate effect of void on residential real estate investment returns in Abuja.

Objectives of the study

    i.   To examine the causes of void in the types of residential properties within the study area

ii. To examine the prevalence of void residential properties across the study area.

iii. To examine the investment returns of residential real estate in the study area.

iv. To evaluate the effect of void on the residential real estate investment returns in the study area.

1.5 Research Questions

Theresearch questions for the study are as below:

i. What are the causes of void in the types of residential properties within the study area?

ii. What is the prevalence and average void periods of residential properties in the study area?

iii. What are the investment returns of residential real estate in the study area?

iv. What is the effect of void in residential real estate investment returns in the study area?

1.6 Scope of the Study

This research focuses residential properties in Abuja Federal Capital City (FCC), particularly Phase 1, Phase 2 and Phase 3. Districts / neighbourhood selected in each phase for this study are: Phase 1; Asokoro,Guzape and Maitama, Phase 2; Katampe, Mabushi and Wuye, Phase 3; Nbora, Galadimawa and Lokogoma. According to the Abuja Master plan, these areas of Abuja were selected for the study to be able to reflect the void properties true representation in the FCC

in view of the fact that they are developed areas and essentially targeted to satisfy the residential accommodation needs of the FCT workers both in public and private sectors especially the civil servants. The study does not include Phase 4 due to the stage of development which is still scanty. More so, the Districts selected are predominantly residential developments of different accommodation types.

1.7 Significance of the Study

This study will address the economic loss to residential real estate investment stakeholders, accommodation challenges, transportation and some security problems associated with void in residential properties within the FCT, Abuja.

This study establishes the causes and effects of void on residential real estate investment returns in city of Abuja, Nigeria. Estate developers and residential real estate investors including the financing / mortgage institutions will benefit from this study. This research will enable the developers to identify types of residential accommodations that are void prone and prevalence of void in various parts of the Abuja City and guide the development plan which will in turn enable financial institutions to prevent default from customers on mortgage.

Professionals in property markets, particularly Estate Surveyors and Valuers whose professional advice / judgment in property management, investment analysis, valuation and viability study are often relied upon by real estate investors will benefit tremendously from this study as the effects of void on the residential real estate investment returns will be useful in determining the viability of the investment which will guide both the developer and the investor including the financial institutions who uses such properties as collateral for loan. Government Agencies such as FCDA

will also find this research beneficial in Abuja City development particularly in government policy formulation as to addressing the menace of void properties within Abuja City.

1.8 Limitations of the Study

Lack of adequate literature and primary dataon some void residential properties constitute major limitation but eventually overcome through rigorous analysis of data collected and interpretation of results.

1.9 Study Area

The study area is Phase 1, 2 and 3 of the Abuja Federal Capital City composed of selected Districts: Asokoro, Guzape and Maitama (Phase 1); Katampe, Mbushi and Wuye (Phase 2); Nbora, Galadimawa and Lokogoma (Phase 3). Federal Capital City (FCC) is located at the core of the FCT within AMAC.

1.9.1 Background of the Federal Capital Territory

Jonathan (1984), Stated that when the then Head of State, General Murtala Mohammed took over the reign of government in July, 1975, he was not pleased with the congestion and chaotic and intractable traffic situation in Lagos occasioned by population explosion in the former capital. The dynamic leader quickly conceived the idea of relocation to a more conducive environment. In 1975, federal government constituted a panel headed by the renowned jurist Justice Akinola Aguda with the charge to examine whether to move or retain Lagos as the Nigeria Federal Capital. The panel was also charged with the responsibility to identify and recommend

alternative location for a new capital should the need arise in the course of their assignment. The body swing into action touring the length and breadth of the country interview people, receiving memoranda and making on the spot assessment of potential sites for the new capital.

In October 1975 the tour took members into Abuja town, the headquarters of Abuja Emirate Council and Abuja local government of Niger state. The team was received on arrival by the Emir, Suleiman Barau who also submitted memoranda written by Alhaji Shuaibu Naibi and Alhaji Jibrin Bala. After touring the entire country, the panel returned to Lagos to review the collected memoranda. In the memoranda received, several locations like Makurdi, Auchi, Okene, Ile, Agege, Kafanchan and Abuja were suggested.

In examining the site suitability, a weighing system made up of thirteen criteria was introduced. At the end of the review, the panel settle for Auja and in their recommendation advised the government to relocate the capital city out of Lagos to the land of the Abuja Emirate. Below are the basis for choosing Abuja as Nigeria new capital; Centrality, Health and climate, Land availability, Water supply, Multi-access possible   , Security, Local sourcing of building material, Low population density, Power resources, Drainage, Soil, Physical land convenience and Ethnic Accord   .

The federal government promptly began to implement the recommendations of the Aguda panel and subsequently decree No. 6 of 1976 was promulgated which enacted the Federal Capital Territory (FCT). Township planning and land administration within the newly created FCT were vested in the federal government of Nigeria. The federal capital was carved out of Niger, Plateau (now Nasarawa) and Kwara state (now Kogi).

The movement to Abuja as the federal capital was affected during the regime of General Ibrahim Babangida. On December 1992 President Babangida formally relocated the seat of government from Dodan Barracks to Aso Rock in Abuja. Similarly, some key ministries and parastatals relocated to Abuja. However, it was General Sani Abacha that completed the movement in 1995 when he ordered all government ministries and parastatals out of Lagos to Abuja.

What is today known as Suleja was the original Abuja town. The name is derived from the first king of the kingdom of Abuja, the full name of the king was Abubakar Jatau, so, the short form of Abubakar 'Abu' and Jatau 'Ja' combined to give the name Abuja. However, another source claimed that because the king was light skinned man, he earned the name 'Ja' meaning in Hausa as 'red' or 'fair'. That was why he became 'Abu the Red'. Between 1976 and 1978, what is today known as Abuja was simply called Federal Capital Territory (FCT). The military government at the time headed by General Olusegun Obasanjo felt there was need to give the new capital a befitting name. As usual a panel was set up to research and recommend appropriately a suitable name. Many names were suggested by different Nigerians. Out of the names suggested, Abuja the town and Emirate that contributed 80 percentage of the total land mass was chosen. In a swift reaction, the name Abuja the town and Emirate was changed to Suleja to avoid confusion. The name Suleja was coined from the combination of 'Sule' the short form of the Emir at the time (Suleiman Barau) and 'Ja' the last syllable of the name for the first Emir of the Emirate.

The Federal Capital City (FCC) situated in AMAC, the development was designed to be in to be in phases (1-IV) whichis situated in the north of the FCT. The Federal Capital City area coverage is approximately 275.30km^{2}whereas the whole Federal Capital Territorycovers about 7,315km^2.

A British settler Mr. Frank Health who had lived in the 'Abuja' during colonial days once described it in 1946 as a land of hills and out cropping granite, rock of rivers and gorges and countless small streams, of forest and open bush. It is exceedingly fertile and healthy even for Europeans, for groups of hills rise two thousand feet above the see level. "The scenery is delightful and varied throughout the emirate, here are three magnificent falls of the gurara, Iku and the Tafa river and the remarkable Zuma rock". This description captures vividly the beauty of the land mass that make up Nigeria's new capital territory Abuja.

1.9.2 Geographic location

FCT is located on latitude 8º 25" and 9º 25" North of Equator and longitude 6º 45" and 7º 45" East of the Greenwich. FCT is bounded by Kaduna State to the North, Kogi State to the South, Nasarawa state to the east and Niger state to the west. The distance of the FCT to Kaduna by existing roads is about 150km, to Bida is approximately 156km and approximately 112km to Minna. Federal Capital City is located on the Northeastern part of the FCT. The city is easily accessible from almost every part of Nigeriadueto the centrality of its location as shown in figure 1.5.
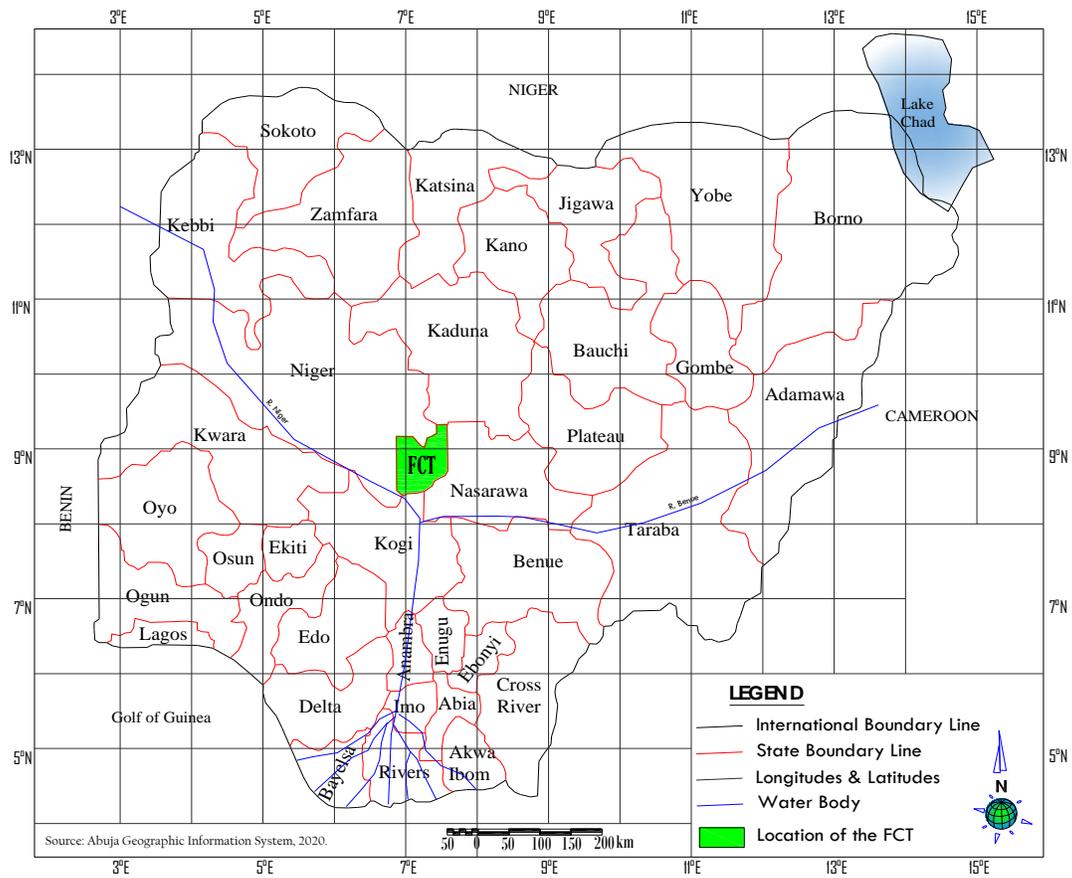
Figure 1.1 Map of NigeriaShowingFCT

Source: (AGIS 2020)
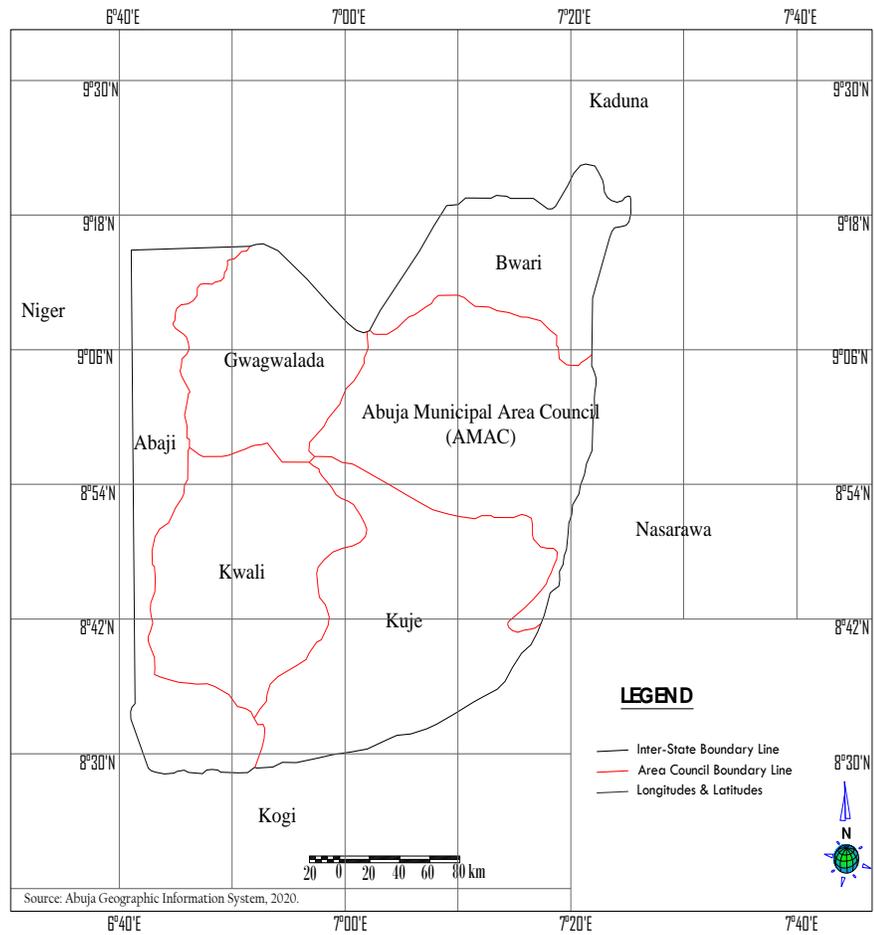
Figure 1.2: The Federal Capital Territory Map Showing the Area Councils

Source: Abuja Geographic Information System (AGIS 2020).
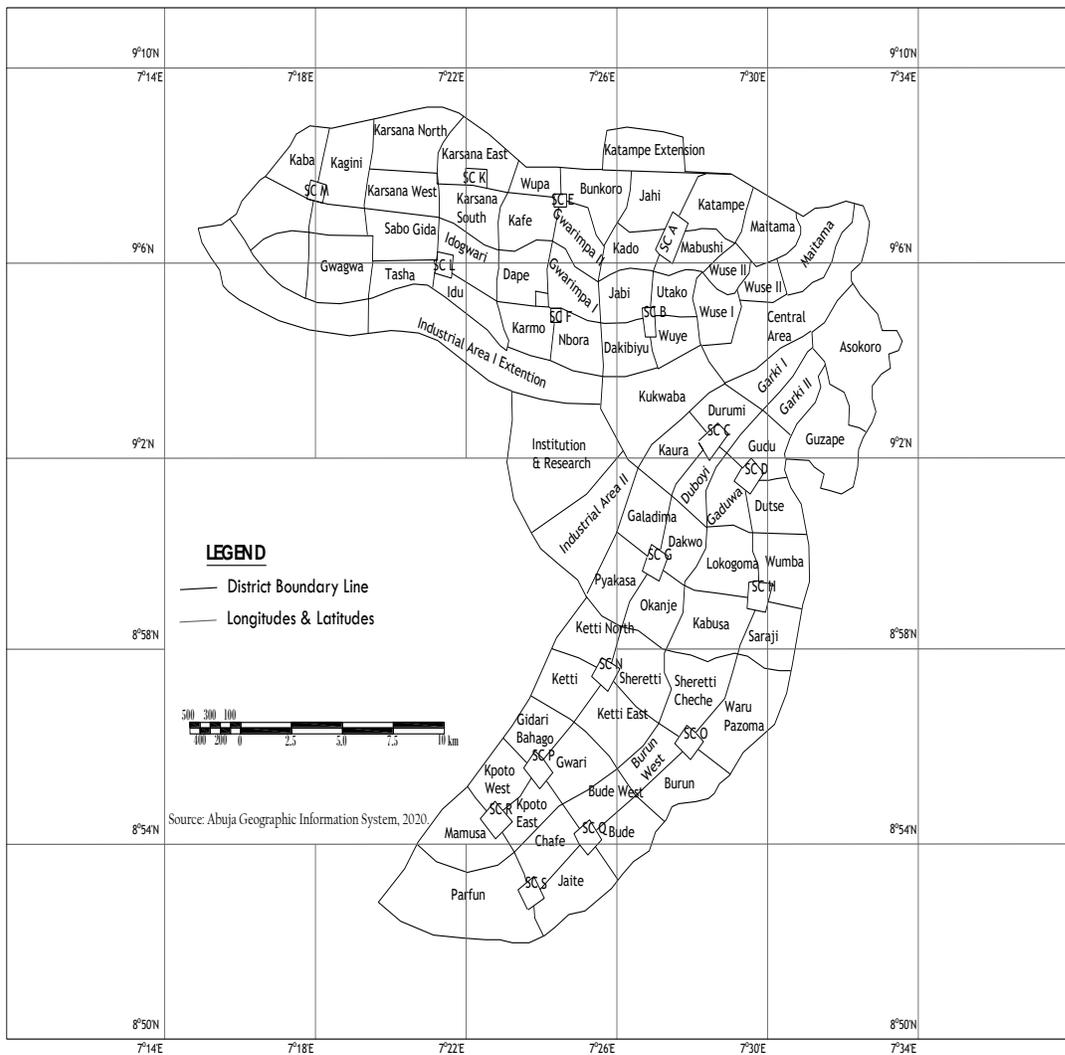
Figure 1.3: FCC Map Showing the Districts.

Source: AGIS 2020
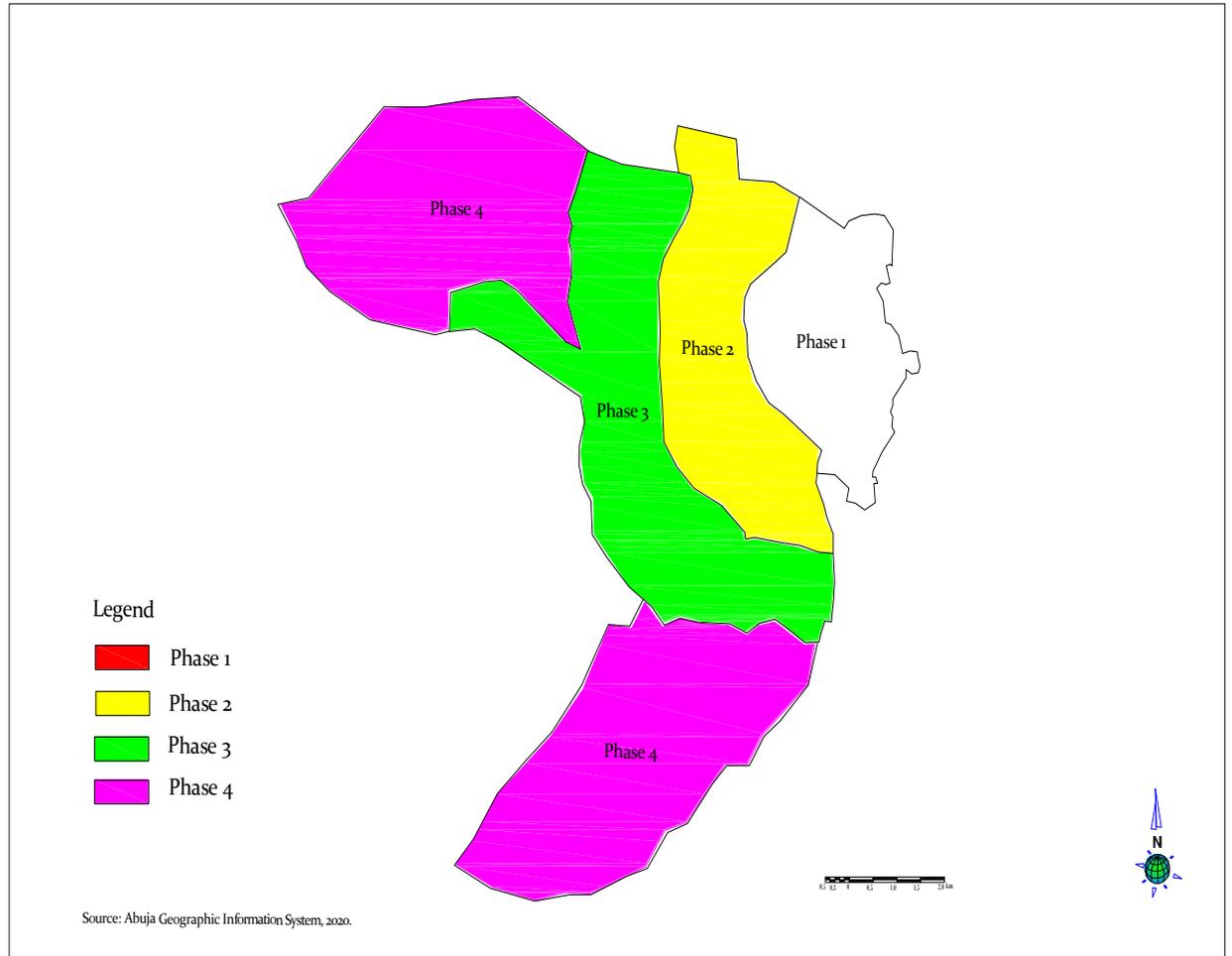
Figure 1.4: The Federal Capital City (FCC) Map Showing Phases 1 - IV

Source: Abuja Geographic Information System (AGIS 2020).

1.9.3 Population

The population of Abujain the year 2006 stood at 1,406,239according to the National Population Commission as reported by National Bureau of Statistics. The same source projected Abuja population to be 3,564,126 in the year 2016.

1.9.4 Socio-Economic Activities

Abuja is centrally located which made it easy to be accessed from every part of the country which enhances socio economic activities and investment opportunity. Abuja being the seat of the government of Nigeria and dominated by civil servants, is a public controlled economy mostly driven by public budget. The Abuja city is still under development with continuous construction of infrastructure such as roads, bridges, rail, power and water. Private business ranges from light industry, manufacturing, tourism, farming, trade and commerce, professional services. Virtually all the banks and financial institutions are represented in the FCC, Abuja.

1.9.5 Land Use Pattern

Approximately 12,486 hectares (49%) of the total land mass of the Federal Capital City were reserved for residential land use as provided for in Abuja Master plan of 1976. The plan was designed on a lineardevelopment pattern to encourage rapid development from the centreof the city towards diversedirections anddevelopment corridors on whichever side of linear gardens demarcation across the various district.

1.9.6 Residential Real Estate Investment in the FCT

The Abuja residential real estate investment is categorised by occupancy which comprises of rented accommodations, owner occupier, public and private residential real estate development. Residential real estate investment types include various accommodations such as block of flats, bungalows, detached and semi-detached duplexes, terrace houses, mansion and townhouses.

Residential real estate investment in Abuja is driven by both public and private developers with expectation of return on investment either by outright sale or rental income. Mortgage and financial Institutions are critical stakeholders in residential real estate investment in the FCT with the primary role of financing development and redevelopment in which repayment plans are usually based on rent and sale proceed of the property.

Residential real estate investment in Abuja Municipal Area Council (AMAC) has rapidly expanded from Phase 1 to Phase 4 to provide residential accommodation needs for the high-profile individuals like top class government officials, high-class politicians, international envoys, expatriates and civil servant. Property market has revealed that many residential properties within AMAC particularly FCC in recent times are void which this research intend to evaluate the effect on the investment returns.

CHAPTER TWO

2.0   **LITERATURE REVIEW**

2.1.Concept of Investment

Thorncroft (2002) described investment as the usage of an indirect method in order to actualisemore output than would be probable by direct method. The indirect methodinvolves using accumulated capital available from savings to attracthigher productivity thatcould be in the terms ofimproved housing quality, increasing housing units, or redevelopment of outdated houses. According to Ogbuefi (2002), future income and profit are the primary purpose of an investment. The investor'sexpectationon an investment in terms of profit or income could be categorised as;

    i.   Returns in terms of dividends, interest, or rental income.

    ii.   Profit earneddue to the increase in the value whenever the investment is leased or sold at higher price above the cost of the investment.

According to Gaylon and Kolbe (2003) the cash flow couldbe from rent, the property being used as loan collateral, via cash savings through off setting else income tax-deductible losses from theproperty interest. Generally, decisions on investment are grounded on the anticipation of getting a positive return on the investment.

Okafor (1983) considered investment as an economic action designed to improve, advance or maintain the productive worth of the current stock of capital. Richmond (2008) described investment to be thelaying down of a capital amount in exchange for a steady revenue over a projected period.

According to Enever (2010), laying down of capital amount now in anticipation for future paybacks is regarded as an investment. Ifediora (1991) view is that investment is purchased for the purpose of achieving benefits by a way of pecuniary gains.

Hence, investment will always involve outlay of asset today in expectation of receiving greater returns in the future. Residential real estate investment requires huge capital outlay with projection of having profitable returns within certain period of time. Most investors in the research area usually rely on the annual rent proceed from properties developed or bought for repayment plan of mortgage or loan used to finance such development with expectation of making profit, however, void occurrence often make the projected rent unachievable. All the literatures reviewed agrees that investment attracts returns of which profitable return is the aim of many investors.

Ogunba (2021), posited that investment in real estate involves the commitment of funds in the purchase, ownership, management, rental and /or sale of a bundle of rights in real estate with a view to preserving capital invested, increasing it, earning a profit and sometimes to enjoy tax relief.

2.2 Classification of Investment

Ogbuefi (2002), classifies investment as annuity acquisition, corporate stocks, corporate or government bonds, life insurance, business contributionsby a way of partnership or joint venture and real estate.

Kuye (2000) categorises investment basically as financial or real. Financial investment are assets such as stocks, shares and fixed securities whileReal investments includes assets like buildings and land.

Okafor (1983) also classifies investment as:

i.   Earning securities fixed interest

ii.   Yielding securities and flexible income

iii. Real estate

Richmond (2008), opines that investment are in the following categories;

i.   Financial

ii.   Shares and Stocks market

iii. Real or Landed properties

According to Enever (2013) investment are categories include loan to companies (debentures), insurance policies, stocks and shares, unit trust, landed properties, durable articles and works of art acquired for use.

In all the classifications of investment by different authors cited, real estate is clearly one major class of investment. In Nigeria and Abuja in particular decisions to invest in real estate is with the primary objective of achieving higher finance return on the capital outlay.

According to Beattie (2019), investment can be classified into three namely;

i. Ownership investments; this class of investments are most volatile and profitable class of investment such as real estate, stock, shares and precious objects and collectibles.

ii. Lending investments; Bond and saving account

iii. Cash equivalents; these types of investments are as good as cash, meaning they are easily converted to cash, for example; money market fund.

2.3 Types of Real Estate Investment

Ring and Dasso (1981) stated that real estate investment involves many types of properties, many buyers and sellers, and many specialists interact under appropriate influence to fix prices for the market transaction. Thus, market participants who buy and sell real property rights are consumers and/ or occupiers and investors or producers.

Differentreal estate investment types according to Kuye (2000) are:

    i.   Residential

    ii.   Offices

    iii.   Factories

    iv.   Agricultural properties

    v.   Special

    vi.   Warehouses

    vii.   Shops

Ratcliffe (2000), real estate investment types are:

    i.   Residential

    ii.   Agricultural

    iii.   Industry and warehousing

    iv.   Shops

Ogbuefi (2002), classifies real estate investment into the following:

    i.   Commercial

    ii.   Residential

    iii.   Recreational

iv.   Agricultural

v.   Industrial

Sirota (2004), described real estate investment as the commitment of fund by an individual or organisation with an expectationof preserving and growing capital and making a profit. We all doing investment of many kinds throughout our lives. Sometimes, real estate investment entails something as important as money which involves the application of other resources such as time and effort. This attractive approach to an investment is referred as sweat equity. Real estate investment goes beyond everyday activities, it concerns the application of free money, money accrued in excess of funds needed to secure life's necessities. This free money is also regarded as discretionary funds, it is termed as money accessible for investment.

Kennon (2020) described real estate as one of themost popular and oldest asset types. This fact is known to most new real estate investors, however, what theyare not familiar with is the different types of real estate investment available. Real estate investments types are:

i.   Residential: this are properties having structureswhich includeblock of apartments, houses,buildings, duplexes, vacation houses which are usually available for individuals or families to pay for and live in for a short period. The period of sojourn is usuallydetermined by the tenancy agreement. Most tenancies in Nigeria, are usually annual or monthly.

ii.   Commercial: this type of properties comprises mostly of office, shop and skyscrapers.

iii.   Industrial: it consists of industrial warehouses and factory buildings.

iv.   Retail: thisincludes shopping complex, malls and stores

v.   Mixed-Use: This is referred as properties that have two or more of types of property uses combined into a single project. Mixed-use real estate investments are popular for

those with significant assets because they have a degree of built-in diversification, which is important for controlling risk.

There are many benefits of real estate investment in Abuja. As the capital of Nigeria, the real estate sector continues to be seen as one of the best places to invest. Location plays a major role in real estate investment, and Abuja has great locations for that. The followings are the benefits of real estate investment in Abuja.

i.   Availability of property finance through Mortgage and other financial Institutions

ii.   Increase in population in the FCT

iii.   Availability of green virgin lands

iv.   Rise in property prices

v.   Good title on land

In all the different categories of real estate investment within FCT, residential appears to be most popular among others within the study area with numerous public and privately developed houses and Estates.

2.4 Characteristics of Real Estate Investment

Mehmodovic *et.al,* (2010) defined real estate property as a financial asset that brings interest, benefits and encumbrances inherent in the ownership of the land and all improvement that are permanently relate to it. Udoetuk (2008) and Kalu (2001) assert that real estate, unlike other types of investment is unique in nature and location; real estate may not be regularly revalued and if the property has been tested in the market, there will be no specific evidence in terms of rental value, yields and capital value.

Sirota (2004) revealed that each parcel of real estate has its peculiarity and no two parcels are the same and thus involves a distinct investment analysis to its particular locational features. However, all real property has some shared characteristics that determines it value. These characteristics include market segmentation, fixity, permanence, longevity and risk.

i.   Fixity: Location of real estate is immovable; this significantly limits the its market space. Due to fixity nature, real estate market is influenced anddetermined to a large extend by the prevailing economic and politicalhappenings of theparticular location.

ii.   Durability: Real estate is commonly regarded to be a long-term type of investment due to the durability of the real property and perpetuity of land. This characteristic of durability allows stockholders to evaluation, with certainmeasure of accuracy, the present worth of a future cash flow from their investment.

iii.   Permanence: The quality of real estate permanence forms the basis for long term mortgagedebt amortisation. Real estate investment, frequently requirehuge sum of money which often require elaborate financial arrangements. These financial arrangements in turn, will require the expertise of Estate valuers, accountants, lawyers, property managers, brokers, and other specialists.

iv.   Risk: Real estate investment is considered to be relatively of high-risk investmentas a result of the uncertainties and somewhat unpredictable property market.

Apart from these essential characteristics of real estate, government policies also impact property worth. At the federal government level, income tax law is usually complicated and frustrating. Similarly, the government's regulations and monetary policies. This control determines the degree of real estate development and property market by influencing the demand and supply as well as mortgage.

Government at various level also function in many other ways to influence property values. Controls and impact studies of environment increases the time and costs of development on land, these costs are eventually paid by consumers. Government policies and decisions concerning zoning and development restrictions raises the prices of already developed properties.

According to Igbinosa (2011) real estate investment was generally seen as a legacy which parents bequeath to their descendants but with the realisation that real estate is a major source of capital appreciation and a good hedge against inflation, the real estate market is coming close in popularity and importance to the money and capital markets.

Baum and Crosby (2007) opined that property investment is an exchange of capital outly for future benefits. In view of the nature of benefits, purchasers or developers of real estate can be divided into those who purchase or develop for strictly as pure investment and others who purchase or develop for occupation and use. Pure investment in real property is a financial investment in the acquisition of income producing property to earn returns in the form of both income and capital appreciation and periodic returns.

2.5 Types and Concept of Residential Properties

Unger and Karvel (2003) states that residential properties are usuallybought for investment. Population growth and movement pattern determine residential estate development.

Kuye (2003) states that basically, residential properties are used for family accommodation and amenities. Property designed and meant for the use ofprivate andindividuals dwelling are referred to as residential. Dubben and Sayce (2005) opines that residential properties are

dwelling houses or rented properties which provides shelter for people. They classify such properties to include, bungalows, flats, apartments, high terrace building, detached houses and duplexes.

Brithon (2007) classify residential properties to include bungalows, flats, duplexes and high-rise buildings for the purpose ofdwellings.

Conti and Harris (2009) state that residential estate are developments where there are many houses meant for accommodation. Beside the preceding comprehensive definitions, residential property in the professional practice is viewed essentially from the perspective of use classification. This implying that residential property is a property that is designed, built and use for residences / living accommodation purposes.

Wagin (2010) considered any investment or income building as residential real estate investment.

According to Akalemeaku and Egbenta (2013), residential real estatearebuildings of differentdesign that provide shelter and accommodation. Any private buildings used for dwellings are regarded as residential properties.

Similarly, Spodek and Magargal (2013) opines residential properties are income generating in nature. They stated furtherthat those properties that provides accommodation and services for individuals and public are residential properties.

According to Udechukwu (2019), Residential properties includes any type of property that is used for dwelling space. Residential property may be privately owned residences as well as government and institutional housing; it is the largest source of demand for the services of

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professional property managers. Residential dwellings can be built in a large variety of configurations. Examples include the following: bungalow, detached / semi-detached duplex, flat houses, maisonette and tenement buildings

Residential properties are places of dwelling refers to as homes, it usually developed as either owner occupier or for investment to be inhabited by tenant on a lease or rental agreement. In Abuja FCT, residential properties are predominant and it is zoned for living or dwelling purposes.

Residential properties in Abuja are of different types and concepts developed to meet the accommodation needs of different categories of the population mostly determined by income and economic status. In the study area, duplexes, block of flats and bungalows are predominant residential properties.

2.6 Meaning of Void

Gabriel and Nothaft (2011), sates that different terms such asempty houses, vacant properties, low occupancy, unoccupied,empty spaces and low demand housing, are frequently used to describe void.

Void properties can be described as those properties that:

i.   Have not been occupied after the last tenant vacated.

ii.   Have never beenoccupied since completion.

iii.   Have illegal occupant due to lack of legitimate tenant.

iv.   Have been unoccupied and have visible sign of "For Sale" or "To Let".

v.   Have gross low occupancy with larger space empty.

Akalemeaku and Egbenta (2013) described void as abandoned, empty,plain, deserted,free, vacant, uninhabited, untenanted and blank. The Authors also defined void property as a property that is not occupied due to the fact that there is no tenant in occupation

Literatures above affirms that void occurs when a property has no legitimate tenant. This could be the length of time between when the sitting tenant vacate and when another tenant occupy the property. Void also occurs between the time when a property construction is completed and when the tenant occupies the property. Property occupied by squatters are also classified as void as it has no return on investment and usually requires extra efforts to secure possession of such properties. However, not all properties that are not occupied for a period of time could be regarded as void, for instance, property purposely build for second home, guest house, holiday home is expected not to be frequently occupied and as such could not be regarded as void properties.or the purpose of this study, void residential properties are those that are vacant for a period of time in which tenants or buyers are desirous by owners for rent or purchase. Void residential properties also include those ones that are vacant and abandoned.

2.7 Causes of Void in Residential Properties

Remoy (2010) state that social amenities influence residential users within particular location to easily relocate from one property to another living some properties completely void. Also state

that road and infrastructure, parking space, ability of the property to adjust to changes may also influence void rate in residential properties.

Killilea and Ward (2013) found out in their studies that reasons properties such asland and buildingbecome void varied; mostly physical condition, social, cultural, and more often economic as a result of demand and supply, patterns of neighbourhood change, and residents' tastes.

Akalemeaku and Egbenta (2013), according to the research, many tenants in recent times prefer smaller accommodation for residence than bigger houses. This choice of tenant can also be responsible for void in residential properties that has bigger rooms and space. Other causes of void discovered   are poor finishing of the properties, fixing of unrealistic high rent by the landlords, poor/ lack of infrastructure. Also, downsizing of many organisations has made some to leave cities and relocate whereby leaving their former residential properties void.

Hendershott, *et.al*(2008) opined that void may occur in residential properties as a result of one of the reasons namely; eviction of tenant, abandonment of property, location of the property, transfer of sitting tenant. Other reasons that could lead to high rate of void in residential property include economic recession which affects negatively the economy as witnessed in some cities in Nigeria.

This research unveils the actual factors responsible for void in residential properties in the Federal Capital City of Abuja where housing deficit is high.

2.8 Void Duration and Prevalence in Residential Properties

According to theUnited StatesDepartment of Housing and Urban Development. (2010). there is no universal definition for vacancy, void or abandoned property. This confounds efforts to evaluate numbers of void residential properties in the country. There is no general definition for void duration, meanwhile, residential properties could be void for short, medium or long term. The period in-between which the last tenant vacates a property and the new tenant takes possession normally takes days or weeks in a situation where prospective tenants are readily available. This void period could be regarded as short term that is the residential property being vacant for not more than 1 month.

Medium term void duration will occur when a major maintenance or repair work is necessary to be undertaking in a property or when the property is hard to let. In this case the residential property could be vacant for more than 1month up to 6months. Within this period, maintenance work or sourcing for tenant could be embarked upon and completed.

Long term void duration is when the residential property is untenanted for more than 6months. This type of long-term void properties could degenerate to abandoned property, once it is unoccupied for years.

Benton C. (2010). Opined that vacant housedo not include seasonal, recreational, or occasional uses. Properties may become vacant for a variety of reasons, some of which are relatively benign. A property that is for rent or sale can be vacant for a short time, and a vacation home might be vacant for most of the year. If these properties are well maintained by reasonable owners, they will not become eyesores or depress neighbouring property values. In general, a void property becomes a problem when the property owner abandons the basic responsibility of ownership, such as routine maintenance or mortgage and tax payment.

In the study area, void is one of the major risks that residential real estate investment is faced with, many estates already completed within Abuja are eitherpartly or totally void notwithstanding huge population without accommodation.

According to the report published by Daily Trust (2019), a random survey that was carried out in some District within the city centre and outskirt of the Federal Capital Territory (FCT), Abuja, revealed that as many built and completed estates are either unoccupied after many years of their completion or are mostly empty with few houses inhabited. Finding from estate agents, security guards and the developers confirm that majority of the estates in the city centre were developed and managed by private developers, however, ownership of those estates at the outskirt of Abuja are a mix of private developers and government agencies.Housing units in these estates were readily available for sale while some are for rent. Response from enquiry also reveal that some of the estates situated within the city centre that are not fully occupied are accommodation between four to five bedrooms detached and semi-detachedand terraced duplexes house with servant's quarters (BQ) and pent houses in few cases. Those unoccupied estates on the outskirts are mostly bungalows ranges between two to four bedrooms and also four-bedroom duplexes.Void residential properties within the Federal Capital City (FCC), Abuja has no accurate figure, however the FCDA has expressed concern about unoccupied residential propertiesand these unoccupied properties are predominant in the AMAC. Some of the void properties have been unoccupied for many years.Housing experts and stakeholders in the country sees high number of void properties as a menace to real estate investment returns.

2.9 General Effects of Void Properties

There are many literatures that confirms void residential properties to have many effects on property market, city development and investment returns.

United StatesDepartment of Housing and Urban Development. (2010),opined that void properties have negative effects and spillover that influence neighbouring houses and even the whole city when the concentration is high. Researchers has attributed void property effects to; reduction in property values, high crime rate, threat to public health and welfare, loss of municipal revenue and increase in cost of Municipal government.

Brian(2008), posited that homes that are simply foreclose and not vacant can result to lowering the property value of the neighbourhood by 3.9%. However, if property is vacant, it can lower the property value of the neighbourhood by almost 10%. Long term void imposed large cost on the property owner, community and most times when the concentration of void properties are high, it becomes too difficult for the private market to deal with and in such case, it might require government intervention with public resources involved.

From the literatures above, early researchers have confirmed that void properties constitute challenges with wide range of effects not only on the property investment return but also negative implications on the security and economy of the neighbourhood, community and government. Residential properties like other forms of properties have economic life span in which an investor is expected to recoup the capital outlay and make profit, this could be negatively affected by void.

2.10   Effect of Void on Residential Real Estate Investment Returns

According to Nissi, (2016) returns is the driving force behind every investment. Real estate returns measures are valuable tools for property investors when evaluating the viability and profitability of real estate investment opportunities, thus allowing them to sort out potentially good opportunities from bad ones. Real estate investors would also want to ensure whether the expected returns are worth the risk that is being taken

According to Oladokun (2011), realisation of investment objectives are rendered unachievable by void. Whereas, residential real estate investments are mostly ventured into in expectation of higher returns at a future date either by sale or rental income. Most residential real estate developments in the study area are finance through mortgage and credit facility by individuals and corporate organization. Repayment plan are usually based on expectation of returns on investment which could be sales proceed or rental income throughout the economic life of the property.

Iroham, *et.al* (2021) opined that despite the sophistication and decorative ambiance which Grade A office buildings command there still exist void in such properties which results in the loss of income that should have accrued to the properties as a result of apparent void.

Barras (1983) outlined that whenever the dominant factor is users demand, automatically cyclical fluctuation will be seen in real estate development. The external factors which either increase or decrease the price trend according to change in environment are; construction cost, variation in users' activity, availability of credit and so on. In real estate, persistent buying and selling increase liquidity of the market, although the market is also prone to interventions by the government. For example, real estate returns is considerably influenced by geographical location, which does not influence the stock and bonds market.

Void has been identified as one of the risks in real estate investment. Kalu (2005) opined that the measurement of risk and returns is a fundamental investment portfolio management activity, although there appears to be greater focus on returns in Nigeria.

Several researchers have carried out studies on the Nigerian real estate markets; Olaleye (2008), Ogunba (2002), Mfam (2005), Nissi (2016), Etuk and Ebong (2016), Diala, Nissi and Ezema (2019). However, there is little work done on the effect of void on residential real estate investment returns which this research chooses to evaluate in the Federal Capital City of Abuja.

Bello (2003) stated that real estate risk such as void is a factor which investors need to know about when investing in real property at any location, but the effect of void on residential real estate investment returns has not been evaluated in the study area.

2.11   Management of Void

Akalemeaku and Egbenta (2013), non-engagement of relevant professionals in property development and Property management has been attributed as a factor responsible for high vacancy rate in properties in many cities. If relevant professionals are used in the development process and management of properties, void could be prevented and reduced by applying the following measures:

i.   Feasibility and viability studies: At the early stage of development, before embarking on construction, feasibility and viability study is necessary to guide the developer on the most appropriate location for residential property to be sited, design and accommodation type and size. This is done to be able to supply what the property market demands per time and by so doing reducing problem of not getting tenant for the property after completion.

ii.   Marketing / advertising of the property: When professionals are engaged, there will be adequate advertisement of the property in order to exposed same to the property market and get suitable tenant. Pre-letting advertisement before completion of the property will help to eliminate void as prospective tenants are gotten before construction is completed.

iii.   Tenant selection: good tenants' selection is a critical factor that professional used to manage void. A good screening process for tenants will be able to determine those tenants that will not be able to fulfill their obligations by paying future rent as and when due which might lead to eviction and eventual void of the property. Frequent turnover of tenant in a residential property will increase void period tendency as it will take time to carry out repairs and sourcing for new tenant. Once a residential property does not have history of tenant staying long, it will discourage prospective tenants which could leads to long term void.

iv.   Prudent rent: Rent are supposed to be determined professionally through valuation whether at the beginning of tenancy or when reviewing existing tenancy. Both landlord and tenant interest must be put into consideration while reviewing rent to reflect the property market and economic reality. Research on rental value trend in every local property market helps in arriving at fair rent that will reduce void. A reduced rent makes economic sense than an unrealistic high rent that result into void properties.

v.   Routine inspection: Professional property managers has routine inspection as one of the obligations to be able to ascertain present conditions of the property and ensure cleanliness and routine maintenance are carried out timely. Residential properties that

are not well looked after and maintained could result to tenant vacating the premises thereby causing void.

vi.   Accessibility for inspection: One of the ways to reduce void period is to ensure that when property is vacant, there is easy access for prospective tenant to inspect. Most property stays longer in the market as a result of no access to the premises. Property Managers must make arrangement for a competent staff to be available at the premises who will open the door and conduct physical inspection with prospective tenant. This might appear irrelevant but it can affect the chances of securing a suitable tenant in good time.

vii.   Nice treatment of tenant: once a good tenant is secured, good relationship must be established in order to encourage a long stay. When tenants are treated nicely, it makes them to feel comfortable in occupation but when treated badly it will lead to them packing out of the premises and spread the bad news that will not allow new tenant to come into the apartment. Professional Estate Surveyors and Valuers and property managers will usually treat their tenant nicely to prevent void.

According to Benton (2010), long term void can be prevented when landlords understand factors that are responsible for low demand in certain categories of properties. Where low- or medium-income earners are predominant, demand for residential accommodation with large space such as detached duplexes will be low and unattractive to prospective tenant as the rent will be higher than their budget. Even when tenant reluctantly rent such property, it will not be sustainable and will lead to frequent turnover of tenant with void periods. Residential properties with high demand will not experience long void and it is necessary for the investor in real estate to understand before embarking on a particular type of residential accommodation.

Delivering property management service that minimize void should be the core objective of any Professional Property Manager, the following measures can be adopted to manage void:

i.   Inform and involve the right people in real estate investment at all stages including development team, maintenance, management, letting staff and contractors

ii.   Develop a clear and realistic re-letting policy of properties under management portfolio.

iii.   Carry out pre-termination inspection, to establish why the tenant is leaving the property, identify the maintenance necessary for the re-letting and identify damages that the outgoing tenant need to pay for.

iv.   Prompt vacancy inspection to identify all defect to be corrected including minor repairs using a standard checklist, such repair can be done concurrently with letting arrangement or even immediately after the letting might have been concluded to speed up activities and minimize void period.

v.   An agreement with prospective tenants to carry out standard redecoration that will enhance speedy letting to meet the need and aspiration of many tenants.

vi.   Supply and bills for electricity, water, and gas should be disconnected to avoid accumulated bill that will discourage new tenant.

vii.   Adequate and prompt security arrangement including when repair work is taken place to prevent vandalisation, criminal elements and illegal occupants.

viii.   Ensuring that properties are let to tenants who can sustain their tenancy in the longer term.

ix.   Monitoring and review of the management process to constantly improve on the system.

2.12 Summary of Literature Review

Review of several literatures has described void properties to mean properties that are untenanted, vacant, unoccupied, empty, without legitimate tenant. Void is said to occur in the property economic lifetime whether for 1day or many years, void is inevitable. Residential real estate investment is channeling finance and other resources in developing or purchasing residential property in expectation of higher return on capital invested either through sale or renting.

Many researchers identified causes of void in residential properties as non-engagement of professionals before embarking on the development, excess supply against demand, exorbitant rent, lack of adequate infrastructure and facilities, poor conditions of the properties. Excess supply against demand and some of the causes identified by the previous researchers seems not to be the challenge in the case study considering the fact that Abuja is still growing and have shortage of residential accommodation. This research evaluates the causes of void in residential properties of the study area. Effects of void in residential real estate investment has been stated to include loss of revenue to the landlord and government. Non- payment of mortgage, foreclosure, crime, loss of property value by 10% and slowness in property market. Previous researchers have established that void is capable of jeopardasing realization of real estate investment objectives, however, effect of void on the residential real estate investment returns has not been adequately work on particularly in the study area.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Descriptive survey and snowball sampling were adopted as the research design for this study, the population of the study was divided by the districts out of which 2 Districts were selected from each of the Phase I, II and III of the FCC, AMAC, Abuja. The research design is used to carry out the effect of void on residential estate investment returns. The design takes advantage of specific scenarios to reveal the effect of void on residential real estate investment returns.

3.2 Population for the Study

Population of the study are the practicing Estate Firms Registered with ESVARBON and NIESV and Association of Estate Agents of Nigeria registered with AEAN Abuja Branch, Nigeria.

3.3 Sample Technique

The sampling technique for this research isstratified random sampling, it is a method for data collection if the population is heterogeneous. In this method the entire heterogeneous population

is divided into a number of homogeneous groups, usually known as strata, each of these groups is homogeneous within itself, and then units are sampled at random from each of these stratums.

3.4 Sample Frame

The sample frame for this research are the registered estate surveying and valuation firms that operates within Abuja Federal Capital City is 171 according to the NIESV directory 2021 and Real Estate Agents has 388 members according to AEAN Abuja Chapter. Therefore, making it the total of 559 population size.

3.5 Sample Size

The sample size selected for the research was considered by means of Smith and Price (2010) model for determining sampling size as below;

$$n = \frac{Z2x\delta2x\ (N/N\text{-}1)}{ME2 + \frac{(Z2x\delta2)}{N\text{-}1}}$$

Where:

n = sample size

δ = Standard Deviation at 0.5

Z = 1.96 (the standard deviation value at 95% confidence level)

ME = Margin of error at $\pm$ 5%

N = number of the population as the time of research is 559

Number of Registered Estate Surveyor and valuers' firms in Abuja = 171

Number of Members of the Association of Estate Agents of Nigeria in Abuja = 388

Total number of Population = **559**

n = $\dfrac{1.962 \times 0.52 \times (559/559\text{-}1)}{0.052 + \dfrac{(1.962 \times 0.52)}{559\text{-}1}}$

n = $\dfrac{0.96210}{0.00422}$

= **227**

Following the calculation above, 227 is adopted as the study sample size.

Structured questionnaires weredesigned and distributed using purposive sampling technique. The total questionnaires administered to the selected population were distributed in the manner below:

% Proportion of population = $\dfrac{\text{(population of each association)}}{\text{Total population}}$

% Proportion of Population for Estate Surveyors and Valuers $\dfrac{171}{559}$ = 0.31

% Proportion of Population for Real Estate Agents $\dfrac{388}{559}$ = 0.69

Proportion of Population = $\dfrac{\text{(\% proportion of population)}}{100}$ x Sample size x 100

Estate surveyors and Valuers Proportion of the population = $\dfrac{0.31}{100}$ x 227 x 100

= 70

Real Estate Agents Proportion of the population = $\dfrac{0.69}{100}$ x 227 x 100

= 157

Table 3.1Breakdown of questionnaires administered to the targeted population of the study.

S/N	Respondents	Population	% Proportion of	Proportion of Population

		Population		
1	Estate Surveyors and Valuers	171	0.31	**70**
2	Real Estate Agents	388	0.69	**157**
3	**TOTAL POPULATION**	**559**	1	**227**

Source: NIESV and AEANDirectory (2021).

3.6 Instrument for Data Collection

Structured questionnaire is the data collection instrumentused for this research which contained items designed to secure data on the void residential properties of the Federal Capital City of AMAC, Abuja. The questionnaire was in two sections Section A and Section B. Section 'A' concentrates on the demographic information of the respondent while Section 'B' contains information that is related to the variables of the study. The seven (7) point fuzzy probability scales are modified as thus:

Strongly Disagree   -   1

Disagree   -   2

Slightly Disagree   -   3

Neither Agreed or Disagree   -   4

Slightly Agree   -   5

Agree   -   6

Strongly Agreed   -   7

3.7 Validity of the Instrument

To determinethe instrument validity, a copy of the questionnaire was given to two experts in estate surveying and valuation firm to determine, if the items of the instrument yielded expression and content validity. The instrument was corrected and confirmed appropriate for data collection. The researcher therefore restructured the questionnaire in terms of the corrections, comments and suggestions after which production was made for field research.

3.8 Methods of Data Collection

Questionnaire: Questionnaire was designed and distributed toEstate Firms and Agents practicing in Abuja in order to collect necessary data related to void period and the effect on investment returns of the properties. The questionnaire was designed in an inquiry form purposely to obtain primary data such as annual rent, market value, void period and to also seek the opinion of the respondents on causes and general effects of void on residential real estate investment returns.

Field Survey: The study also carried out a reconnaissancesurvey of the study area before the administration of the questionnaire in order to be acquainted with the study area.

3.9 Method of Data Presentation and Analysis

Presentation of datawere in form of: Tabulation, Charts, Maps Statistical Averages and Sampling.

Descriptive statistics of frequency, percentage and mean were used to analysed objective I, II.

Objective III was analysed using Average Rate of Returns (ARR) method with below formular**:**

$$ARR\ (\%) = \frac{\text{Average Net Rent}}{\text{Capital Value}} X\ 100$$

The Average Rate of Return (ARR) is the average net rent divide by the capital value of the properties sampled in the case study.

Linear regression was used to analysed objective V. The equation is as follows: $\mathbf{Y = a + bX}$

$\mathbf{Y}$ is the dependent variable (rent); $\mathbf{X}$ is the independent variable (void period).

$\mathbf{a}$ is the y-intercept while $\mathbf{b}$ is the slope of the line.

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND SUMMARY OF FINDINGS

4.1 Questionnaire Administration

A total of 227 copies of the instrument were administered to the respondents who were sampled in the study area.

The presentation, analysis and interpretation of data were prepared around the research objectives. Results were presented in tables and Chart and the research findings were also discussed accordingly.

Table 4.1: Questionnaire Administration and retrieved.

Variable	Frequency	Percentage (%)
Questionnaire Administered	227	100%
Questionnaire Retrieved	227	100%

Source: Field Survey, 2021

Table 4.1 displays the whole questionnaires distributed and retrieved as 227.

4.2 Demographic Survey of the Respondent

Demographic data were gathered about the respondents in order to understand certain characteristics such as age and educational qualification to ascertain the level of credibility of data supplied concerning the study.

Table 4.2: Respondents Age Range

Variable	Frequency	Percentage (%)
Under 30	50	22%
30 – 40	69	30%
41 – 50	83	36%
50 and above	27	12%
Total	**227**	**100%**

Source: Field Survey, 2021

Table 4.2 indicates the age range of the respondents. A such, the analysis reveals that 22% of the respondents are within ages ranging under 30. Next set of respondents (30%) belong to ages ranging from 30 – 40 while 36% of the respondents belong to ages between 41 – 50 and 12% of respondents belong to 50 and above. The analysis displays that more respondents (36%) belong to ages ranging from 41 – 50 years. The Respondents are experienced in property management of which they were familiar with the void properties sampled and competent to respond to the questionnaire administered.

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Table 4.3:Respondents Educational Qualification

Variable	Frequency	Percentage (%)
SSCE	16	7%
ND/NCE	25	11%
HND/B.Sc.	176	78%
Master	7	3%
Ph.D.	3	1%
Total	**227**	**100%**

Source: Field Survey, 2021

Table 4.3 shows respondent's educational qualification. The analysis indicates that 7% of the respondents are holders of SSCE and 11% of the respondents are holders of ND/NCE, 78% of the respondents are holders of first degree (HND/B.Sc.) while some other respondents 3% holds master and the remaining 1% are Ph.D. holders. This suggests that most of the respondents that participated in the study are HND/B.Sc. holders and about 78% of the respondents have postgraduation practical experience in the management of void properties sampled which authenticate the integrity of data collected and used for analysis.

4.3 Void Residential Properties in the Study Area

Void properties sampled in the case study comprises of those residential properties in the property market that are unoccupied and available for rent or sale. Respondents were asked as to whether the void properties were for rent or sale and the data supplied were presented and analysed accordingly

Figure 4.1: Void Residential Properties for Rent and Sale

Void residential properties for rent and sale
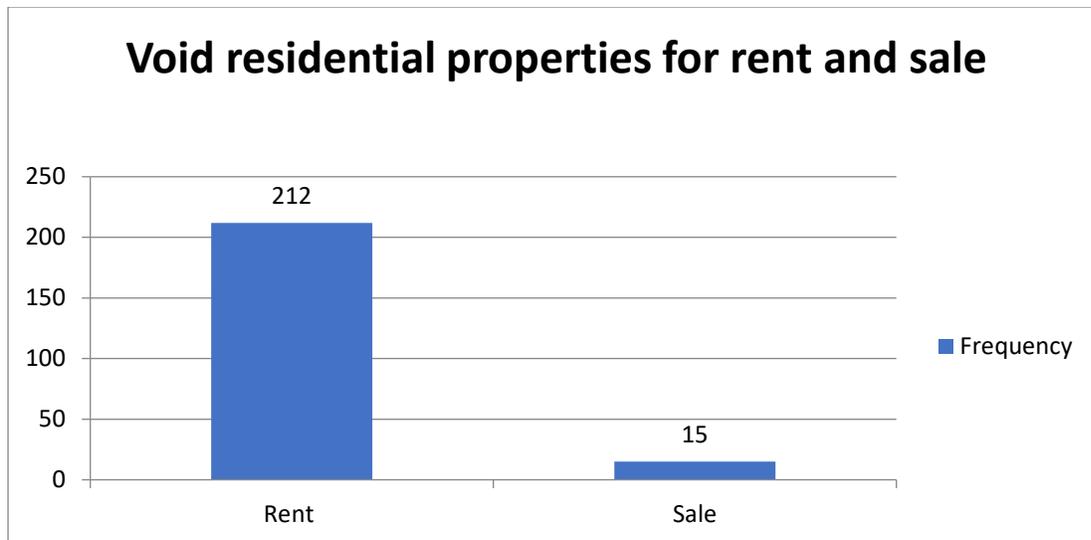
Source: Field Survey, 2021

Figure 4.1 shows void residential properties for rent and sale. The analysis indicates that 93% of the void residential properties are for rent while 7% are for sale. This implies that most of the void residential properties in the survey are for rent of which the data obtained on the rent loss over void period were analysed to determine the effect of void on the residential real estate investment returns.

4.3.1 Types of Void Residential Properties in the Study Area

Void residential properties sampled were categorised based on the accommodation types in order to analyse the frequency of different types of residential properties that are void.

Table 4.4: Types of Void Residential Properties in the Study Area

S/No.	Property	Frequency	Percentage (%)
1	1 Bedroom Flat	17	7%
2	2 Bedroom Flat	48	21%

3	3 Bedroom Flat	68	30%
4	4 Bedroom Flat	13	6%
5	Bungalow	27	12%
6	Duplex	41	18%
7	Others	13	6%
	Total	**227**	**100%**

Source: Field Survey, 2021

Table 4.4 indicates residential properties types that are void in the study area. Analysis displays that 7% of the void properties are 1bedroom flats while 21% are 2bedroom flats and 30% of the void properties are 3bedroom flats, 6% of the void properties are 4bedroom flats, 12% of the void properties are bungalows, 18% of the void properties are duplexes, and 6% of the void properties belongs others category which are mansion and town houses. The analysis shows that more void properties (30%) belong to 3bedroom flats category. On the aggregate, flats represent 70% of the entire void residential properties in the study area.

4.3.2 Void Residential Properties within the various Districts of the Study Area

Types of residential properties that are void within the various Districts in the study area were presented which indicate the prevailing types of properties that are void at the various Districts of the FCC, Abuja.

TYPE OF PROPERTIES	DISTRICTS									TOTAL
	ASOKORO	GUZAPE	MAITAMA	KATAMPE	MABUSHI	WUYE	NBORA	GALADIMAWA	LOKOGOMA	

										Total
1 BEDROOM FLAT	0	0	0	0	3	2	5	1	6	**17**
2 BEDROOM FLAT	0	0	3	11	13	6	5	8	2	**48**
3 BEDROOM FLAT	4	8	8	11	7	15	8	2	5	**68**
4 BEDROOM FLAT	6	4	3	0	0	0	0	0	0	**13**
BUNGALOW	0	0	0	0	0	2	5	10	10	**27**
DUPLEX	10	14	9	3	0	5	0	0	0	**41**
OTHERS (MANSION / TOWNHOUSE)	5	4	4	0	0	0	0	0	0	**13**
TOTAL	**25**	**30**	**27**	**25**	**23**	**30**	**23**	**21**	**23**	**227**

Table 4.5: Void Residential Properties within the various Districts in the Study Area

Source: Field survey, 2021

Table 4.5 displays that void flats are predominant within Katampe, Mabushi, Wuye, Nbora and Galadimawa. Void Bungalows are mainly within Nbora, Galadimawa and Lokogoma while void duplexes, mansions and townhouses are prevalent within Asokoro, Guzape and Maitama Districts.

4.3.3 Average Void Period of Residential Properties in the Study Area

Data were collected on the average void period of residential properties sampled between the year 2011-2021 which was presented and analysed based on the property accommodation types.

Table 4.6: Average Void Period of Residential Properties in the Study Area between 2011 - 2021

S/No.	Property	Average Void Period

1	1 Bedroom Flat	10 months
2	2 Bedroom Flat	2 years ,5 months
3	3 Bedroom Flat	3 years
4	4 Bedroom Flat	3 years, 5months
5	Bungalow	3 years, 4 months
6	Duplex	3 years, 11 months
7	Others (mansion and townhouse)	5 years, 6 months

Source: Field survey, 2021 (Computed from Appendix C)

Table 4.6 indicates that void period varies among the property accommodation types with 1 bedroom flat having the least void period of 10 months for the whole 10years studied. The table further revealed that the larger the property accommodation the longer the void period with mansion and townhouses having void period of 5 years and 6 months out of the10 years studied.

4.3.4 Causes of Void in Residential Properties in the Study Area

Based on previous research, it is established that property void is caused by a number of factors which varies from one location to another. The respondents were given the opportunity to rank 10 different factors that could be responsible for the void of which the data were analysed and presented in table 4.7.

Table 4.7 Causes of Void in Residential Properties in the Study Area

S/No.	Factors	1	2	3	4	5	6	7	FPS	SD	Rank
1	Economic downturn	13	27	42	13	27	67	81	5.00	4.8740	2
2	High rent	15	20	25	30	25	35	120	5.28	5.1424	1

									Mean	Index	Rank
3	Non use of professionals in property development	70	28	126	3	3	0	40	3.00	3.0960	9
4	Corruption	75	5	10	10	150	15	5	3.81	3.7761	6
5	Poor finishing	60	20	100	62	13	10	5	2.99	2.8245	10
6	Location	4	15	90	28	41	10	82	4.65	4.5010	3
7	Security	2	15	140	20	18	62	13	4.02	3.7889	4
8	Excess supply rate	13	60	62	100	20	10	5	3.39	3.1044	7
9	Construction defect	3	120	4	29	50	12	52	3.91	3.9233	5
10	Accessibility	1	177	0	28	36	12	16	3.08	3.0074	8
11	Court case	15	10	10	61	10	12	8	2.85	2.7246	11
12	Parking space	4	13	41	84	20	13	27	2.71	1.8245	12
13	Poor infrastructure and amenities	3	1	2	15	13	32	25	1.69	1.6244	13

Source: Field Survey, 2021

Data from table 4.7 above indicates that all the factors are significant. However, a thorough examination revealed that some factors ranked more than others. High rent was ranked the first with indices of 5.28 followed by economic downturn with indices of 5.00. This means that high rent affects the rate of void residential properties in Abuja City more than any other factor, this could be as a result of inability of the populace who are predominantly civil servant to afford rent of residential properties within the study area. Economic downturn is one factor that slowdown economic activity over a sustained period of time, and the respondents ranked it second with indices of 5.00. Location and Security are third and fourth respectively with indices of 4.65 and 4.02 respectively, while Construction defect and Corruption are fifth and sixth with indices 3.91

and 3.81 respectively, Excess supply rate ranked seventh with indices of 3.39 and Accessibility ranked eight with indices of 3.08 respectively. Non uses of professionals in property development and poor finishing are ranked ninth and tenth respectively with indices of 3.00 and 2.99. Court case, parking space and poor infrastructural and amenities are eleventh, twelveth and thirteenth respectively with indices of 2.85, 2.71 and 1.67. The above analysis shows that all factors are critical as they can result to void residential property since none of the respondents completely disagreed with any of the factors.

4.3.5 Analysis of General Effects / Disadvantages of Void Property in the Study Area

The general effects and disadvantages of void properties within the study area were analysed based on the respondents ranking of the various consequences of void.

Table 4.8: General Effects / Disadvantages of Void Property in the Study Area

S/No.	Effects Of Void	1	2	3	4	5	6	7	FPS	SD	Rank
1	Rental loss to landlords	0	10	16	25	7	52	160	6.06	5.7207	1
2	Illegal occupation by squatters	0	0	8	1	112	134	15	5.54	5.0735	4
3	Exposure to fire and other perils	16	6	10	56	150	24	8	4.56	4.2164	9
4	Hideout for criminals	5	3	128	4	0	0	130	4.89	4.8236	8

5	Quick depreciation	6	16	24	10	56	150	8	5.13	4.8120	7
6	Vandalism	6	0	25	10	160	9	60	5.17	4.8151	6
7	Loss of revenue to the government	3	9	17	22	7	106	106	5.83	5.4961	2
8	Reduce poverty value	2	6	16	24	54	50	118	5.76	5.4201	3
9	Reduce aesthetic of the neighbourhood	6	9	23	18	29	156	29	5.37	5.0369	5
10	Increase risk to public health	1	4	134	15	4	56	56	4.51	4.3478	10

Source: Field Survey, 2021

An examination of table 4.8 indicates that all the items are highly significant as general effects of void on residential properties. Rental loss to landlords was ranked first with indices of 6.06. Also significantly ranked in the second position with indices of 5.83 is that void residential property can lead to the loss of revenue to the government. Reduce poverty value, this was ranked third with indices of 5.76, while illegal occupation by squatters was ranked fourth with indices of 5.54. Reduce aesthetic and vandalism are fifth and sixth respectively with indices of 5.37 and 5.17 respectively, while quick depreciation ranked seventh with indices of 5.13, hideout for criminals was ranked eight with indices of 4.89 and exposure to fire and other perils ranked ninth with indices of 4.56. The above results support the fact that the effects of void on residential real estate investment returns (rent loss to landlords) is most significant.

4.4 Analysis of Residential Real Estate Investment Returns in the Study Area

Annual rents and capital values of the void residential properties sampled in the study area were analysed to examine the Returns on Investment and Average rate of Returns on the categories of residential properties within the study area.

Table 4.9: Investment Returns on Residential Properties in the Study Area

Property Type	Average Rent (AR) (N)	Average Net Rent (ANR) AR – 10% outgoings(N)	Average Capital Value (ACV) (N)	Returns on Investment (ROI) per Annum	Average Rate of Return

1 Bedroom flat	1,282,353.00	1,182,350.00	25,764,705.88	0.045	4.5%
2 Bedroom flat	1,627,083.00	1,527,083.00	36,937,500.00	0.040	4.1%
3 Bedroom flat	2,198,529.41	1,978,676.20	47,514,705.88	0.041	4.1%
4 Bedroom flat	2,984,615.38	2,686,153.84	62,615,384.62	0.043	4.3%
Bungalow	4,051,851.85	3,464,666.66	90,592,592.60	0.040	4.0%
Duplex	14,146,341.46	12,731,707.31	342,682,926.83	0.037	3.7%
(Mansion & Townhouse)	31,461,538.46	28,315,384.61	717,692,307.69	0.039	3.9%

Source: Field survey, 2021 (Computed from Appendix D)

The above represent the annual returns on investment and rate of returns on each category of void residential properties within the study area. One Bedroom flats command the highest rate of return of 4.5% while duplex has the least rate of return of 3.7%. Rate of return is the percentage of the property capital value that is earned annually in form of net rent receivable by the landlord.

4.5 Effect of Void on Residential Real Estate Investment Returns in the Study Area.

Effect of void on residential real estate investment returns was analysed using data collected on void periods and rents within 10 years of sampled properties as recorded in Appendix E in order to determine the effect of void (X) being independent variable on the rent (Y) as the dependent

variable. This analysis was carried out by means of linear regression and the following results were obtained.

4.5.1. Effect of Void on Investment Returns of 1Bedroom Flat

Effect of void on investment returns of 1bedroom flat within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows.

Table 4.10: Regression Analysis of One Bedroom Flats

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.78023	0.74491	-1.04741	0.311496	-2.367964876	0.807513	-2.36796	0.807513
X Variable 1	0.140339	0.057714	2.431619	0.028035	0.017324022	0.263353	0.017324	0.263353

Source: Data Analysis, 2021

Linear regression model

$$Y = a + bx$$

The following regression equation was obtained.

$$Y = 0.1403 - 0.7802x$$

The intercept of 0.1403 indicates that rent will be 0.1403 if there is no void period. This is because once void period is zero, it (zero) is multiplied by the slope or b (0.7802) resulting in zero. This is added to the intercept leaving the intercept value 0.1403.

The coefficient b (-0.7802) shows that for every unit increase in the X variable (Void) the Y variable (Rents) will differ by the amount of the coefficient (-0.7802). It is also regarded to as the slope of the line in a simple linear equation.

From the regression equation obtained above, the sign of coefficient b is negative (-0.7802). Therefore, the regression coefficient of -0.7892 indicates a negative relationship between the independent variable and the dependent variable of rent. This means that 78% variation or fluctuation in rental values of the examined property.

The p value of the void variable in the above table is (0.028035). The p value is less than the cutoff point (0.05), this indicates that this is a "significant variable" and that the void is probable to impact rent.

The above result reveals that investment returns (rent) of 1bedroom flat in the study area are not significantly affected by void.
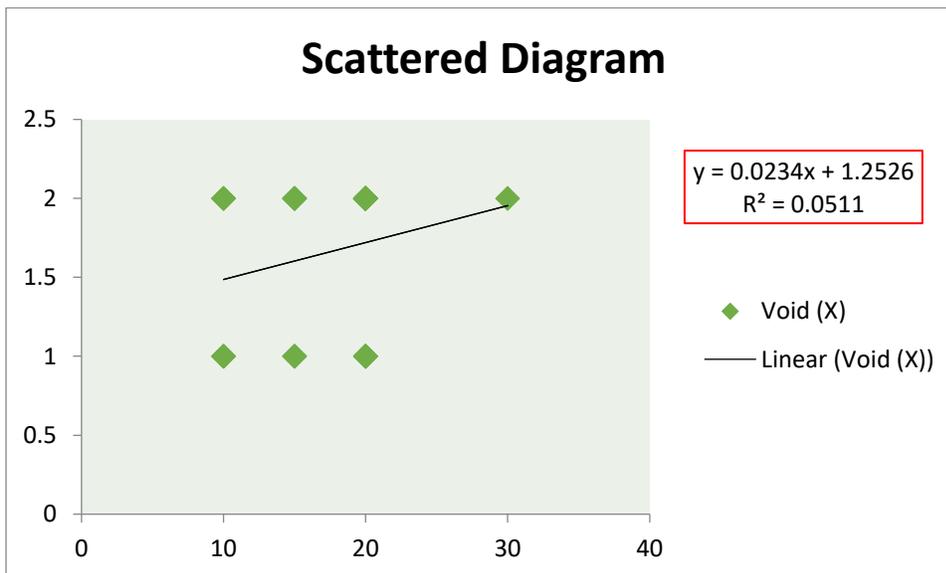
Figure 4.2: Scattered Diagram of One Bedroom Flats

From Figure 4.2, the scattered diagram shows a positive relationship or positive correlation between void and rent on the analysis. This means that in general, effect of void is not statistically significant on 1bedroom investment returns within the study area.

4.5.2. Effect of Void on Investment Returns of 2Bedroom Flat

Effect of void on investment returns of 2bedroom flat within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.11: Regression Analysis of Two Bedrooms Flats

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-1.14521	1.509649	-0.75859	0.451967	-4.183971	1.89356	-4.18397	1.89356
X Variable 1	0.319552	0.091999	3.47344	0.00113	0.13436808	0.504735	0.134368	0.504735

Source: Data Analysis, 2021

The following regression equation was obtained

$$Y = 0.3195 - 1.1452x$$

The intercept of 0.3195 indicates that rent will be 0.3195 if we do not have void period. This implies that when void period is zero, it (zero) is multiplied by the slope of b (-1.1452) resulting in zero.

The p value of the variable X (Void) in the above table (0.0013), the p value is less than the cutoff point (0.05). This indicates that it is a "Significant variable" and that the void is likely to impact rent.

The above analysis reveals that rate of void affect significantly, the returns on investment returns of 2bedroom residential properties in the study area.
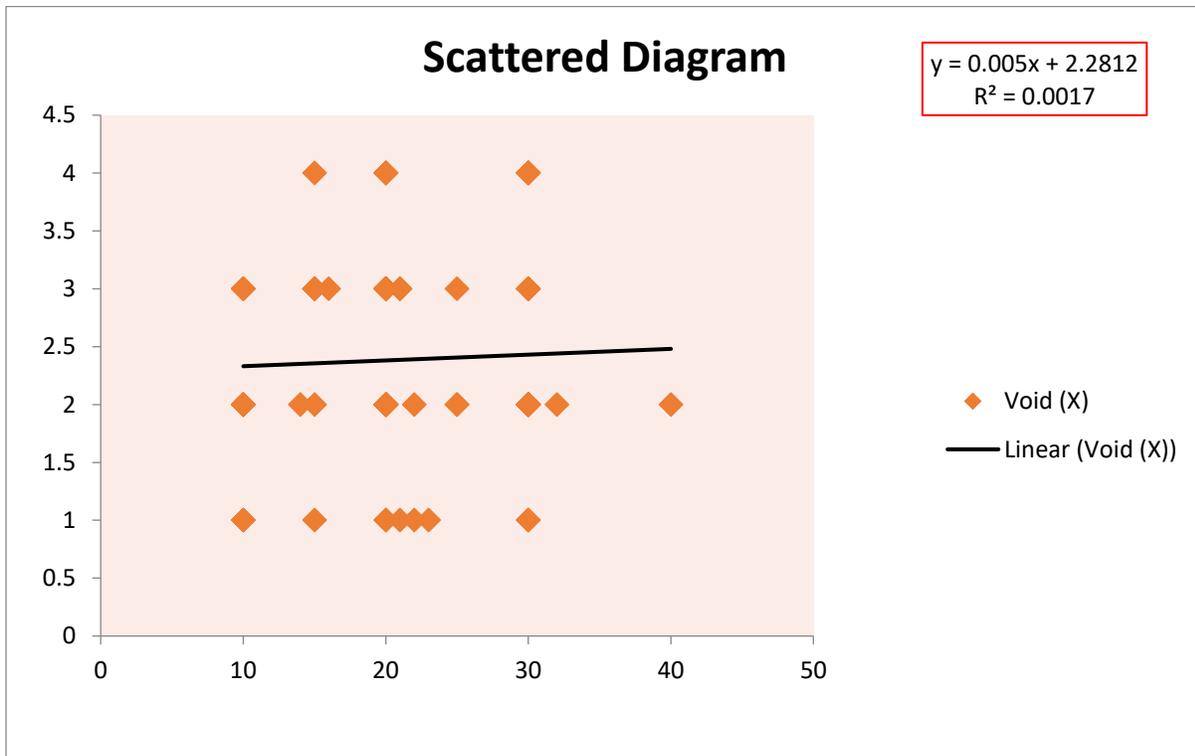
Figure 4.3: Scattered Diagram of Two Bedrooms Flats

From figure 4.3, the scattered diagram shows a positive relationship or positive correlation between void and rent on the analysis. This means that in general, effect of void on 2bedroom investment returns is significant but have no negative effect in the overall.

4.5.3. Effect of Void on Investment Returns of 3 Bedroom Flat

Effect of void on investment returns of 3-bedroom flat within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.12: Regression Analysis of Three Bedrooms Flats

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	31.28165	3.696684	8.462083	1.03E-11	23.88193	38.68137	23.88193	38.68137
X Variable 1	-0.83275	1.207869	-0.68944	0.493296	-3.25057	1.58506	-3.25057	1.58506

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 31.2816 - 0.8327x$$

The intercept of 31.2816 specifies that rent will be 31.2816 if void period did not occur. This implies that when void period is zero then it is multiplied by the slope or b (- 0.8327) resulting in zero. This is added to the intercept resulting in the intercept value of 31.2816.

The coefficient b (- 0.8327) indicates that for every unit increase in the variable X (void) the Y variable (rent) will cause variation by the amount of the coefficient – 0.8327.

The regression coefficient of – 0.8327 shows a negative relationship among the independent variable and dependent variable of rent. This means that – 83.27% variation in rental value of the examined property can be explained by the variation of void (the independent variable)

From the above analysis it shows that the investment returns on 3bedrooms flat in the study area significantly affected by void.
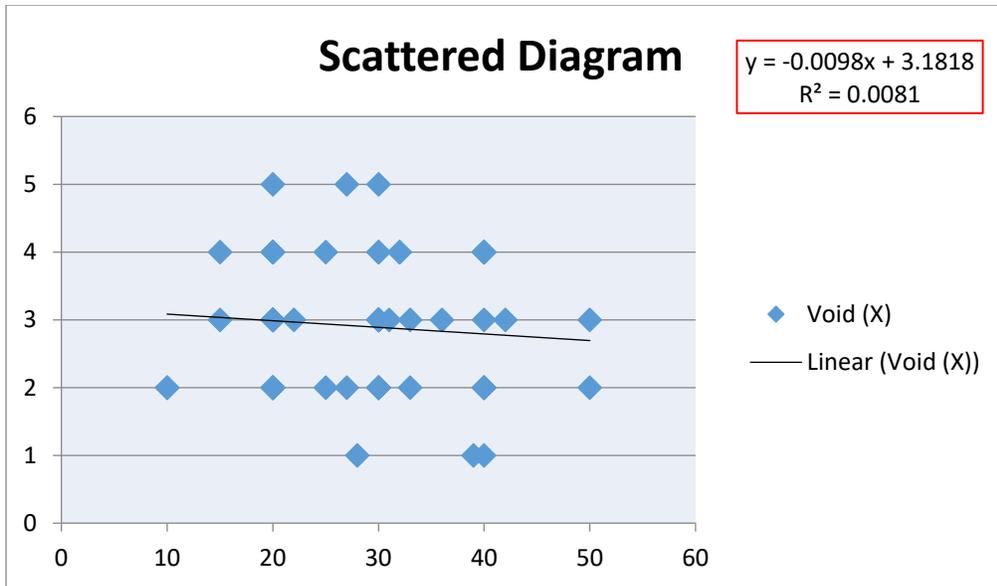
Figure 4.4: Scattered Diagram of Three Bedrooms Flats

From Figure 4.4 above there is a negative affiliation between the variables, as the void period increases the rent decreases significantly. This also means that the void period is statistically significant on the investment returns of the 3bedroom flat within the study area.

4.5.4. Effect of Void on Investment Returns of 4Bedroom Flat

Effect of void on investment returns of 4bedroom flat within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.13: Regression Analysis of Four Bedrooms Flats

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	45.32653	8.044032	5.634802	0.000152	27.62174	63.03133	27.62174	63.03133
X Variable 1	-1.55102	2.264767	-0.68485	0.507614	-6.53574	3.433698	-6.53574	3.433698

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 45.3265 - 1.5510x$$

The intercept of 45.3265 indicates that rent will be 45.3265 if void period did not occur.
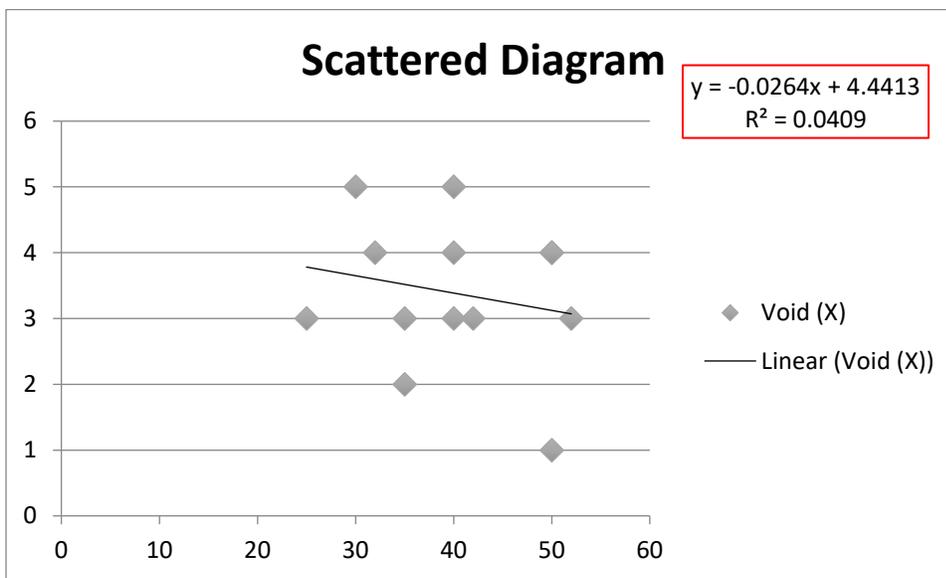
Figure 4.5: Scattered Diagram of Four Bedrooms Flats

From the above analysis it shows that investment returns of four bedrooms flat in the study area are significantly affected by void to the negative. it implies that, as the void period increases, rent decreases significantly. This also means that the void period is statistically significant on the investment returns of the 4bedroom flat within the study area.

4.5.5. Effect of Void on Investment Returns of Bungalow

Effect of void on investment returns of bungalow within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.14: Regression Analysis of Bungalows

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	24.44155	4.623188	5.286729	5.01E-05	14.72859	34.1545	14.72859	34.1545
X Variable 1	-0.45894	1.274908	-0.35998	0.723054	-3.13742	2.219544	-3.13742	2.219544

Source: Data Analysis, 2021

For the above table, the equation would be approximately:

$$Y = 24.441 - 0.4589x$$

The regression coefficient of -0.4589 shows a negative relationship amongst the independent variable and the dependent variable of rent.
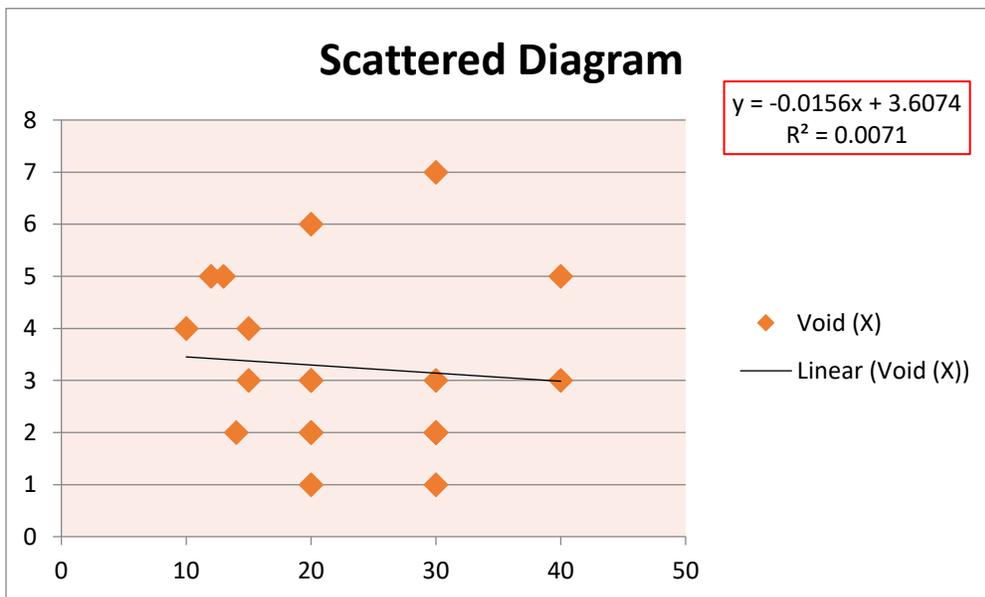
Figure 4.6: Scattered Diagram of Bungalows

From Figure 4.6 The above analysis indicates a linear correlation between the variables. It slants down from left to right indicating that the independent variable increases as the dependent

variable decreases depicting a negative relationship. Therefore, void period is statistically significant on the investment returns of the bungalow within the study area.

4.5.6. Effect of Void on Investment Returns of Duplex

Effect of void on investment returns of duplex within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.15: Regression Analysis of Duplexes

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	55.84784	15.03787	3.713813	0.000689	25.34962	86.34606	25.34962	86.34606
X Variable 1	6.423164	3.503718	1.833242	0.000750	-0.68271	13.52903	-0.68271	13.52903

Source: Data Analysis, 2021

The coefficient table provides us with the necessary information to predict the effect of void on investment returns, as well as determine whether void contribute significantly to the model.

The regression equation is as below

$$Y = 55.847 + 6.4231x$$

The above analysis reveals that high rent affects the rate of void in duplex, however the investment returns are not negatively affected.
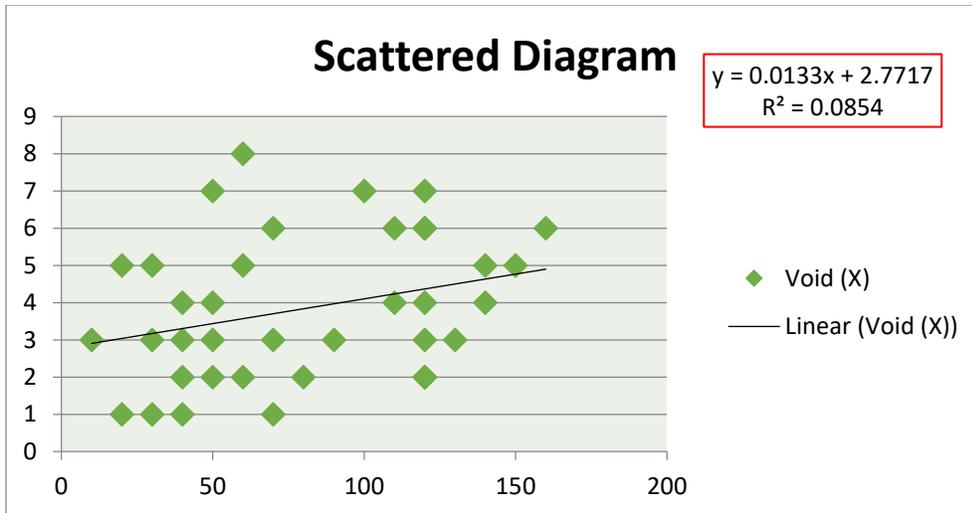
Figure 4.7: Scattered Diagram of Duplexes

From Figure 7 above, the line of best fit slants up from left to right, this scattered diagram shows a positive relationship or positive correlation between void and rent on the analysis. This means that the effect of void on investment returns of duplexes are not statistically significant.

4.5.7. Effect of Void on Investment Returns of Mansion and Townhouse

Effect of void on investment returns of Mansion and Townhouse within the study area was determined by analysing the data on void period occurrence and rent within the period of 10 years as follows:

Table 4.16: Regression Analysis of Mansion and Townhouse

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	293.92	93.92794	3.129207	0.009591	87.186	500.654	87.186	500.654
X Variable 1	-7.76	16.78685	-0.46227	0.652899	-44.7076	29.18761	-44.7076	29.18761

Source: Data Analysis 2021

The following regression equation was obtained.

$$Y = 293.92 - 7.76x$$

Figure 4.8: Scattered Diagram of Mansions and Townhouses

From the above analysis it shows that investment returns on mansion and townhouse are negatively affected by void in the study area.

4.6 Significant Effect of Void on Real Estate Investment Returns in the Study Area

The effect of void on the real estate investment returns in the study area in terms of percentage of returns (rent) loss due to void is summarised in table 4.17.

Table 4.17: Rate of Effect of Void on Real Estate Investment Returns in the Study Area

Properties	Effect of void on real estate investment returns (Rent)
1 Bedroom flat	7%
2 Bedroom flat	24%
3 Bedroom flat	30%
4 Bedroom flat	34%
Bungalow	33%
Duplex	39%
Others (Mansion & Townhouse)	55%

Source: Field survey, 2021 (Computed from Appendix E)

Table 4.17 indicates in percentage the extend at which void has affected the investment returns that ought to have been generated from the void properties with mansion and townhouse having 55% loss due to void.

4.7 Rent Loss Due to Void of Residential Properties Sampled in the Study Area

Analysis of rent loss due to void were carried out to ascertain the amount of investment returns that void occurrence have prevented from the sampled properties.

Table 4.18: Rent Loss Due to Void

Property	Rent loss due to void
1 Bedroom flats	17, 330,000.00
2 Bedroom flats	194,600,000.00
3 Bedroom flats	449,500,000.00
4 Bedroom flats	132,300,000.00
Bungalow	367,200,000.00
Duplex	228,100,000.00
Other (Mansion)	218,400,000.00
Total	**1,590,100,000.00**

Computed from Appendix E

The above table 4.12 shows that over the period of ten years (2011 – 2021), the 227 void residential properties sampled had rent loss of One Billion Five Hundred and Ninety Million One Hundred Thousand Naira (N1,590,100,000.00). This is equivalent to annual rental loss of One Hundred and Seventy-Four Million One Hundred and Fourteen Thousand Naira (N174,114,000.00).

4.8 Summary of Findings

The result of void residential properties identified across the study areas revealed that:

1. Most void residential properties are those available in the property market for rent which account for 93% while the remaining 7% are for sale.

2. Highest number of void residential properties falls within the categories of 3bedroom flat followed by 2bedroom flat which represent medium income accommodation.

3. The bigger the accommodation of residential properties, the longer the void period.

4. High rent is the most significant factor responsible for void residential properties closely followed by the economic downturn. Lack of Infrastructure is the least significant factor responsible for void in the study area.

5. Loss of revenue to landlord is the topmost ranked effect of void among many others.

6. 1bedroom flat among the categories of residential properties studied has the highest average rate of returns of 4.5% while duplex has the lowest of 3.7%

7. Effect of void on residential real estate investment returns in the study area is statistically significant with negative impact on 3 and 4bedroom flats, bungalows, mansions and townhouses.

8. The negative effect of void on return on investment (ROI) in the economic life of residential real estate in the study area varies from 1bedroom at 7% to Mansion / townhouses at 55%.

9. Over the period of 10years, landlords of 227 void residential properties had rent loss of N1,590,100,000.00

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study has uncovered that void residential properties in the Federal Capital City of Abuja Municipal, FCT are principally caused by high rent which are not affordable by the would-be tenants and buyers. Similarly, economic downturn over time was responsible for the void in residential properties. Large residential accommodations experienced longer void period more than the smaller accommodations.

Landlords of void residential properties suffers rent loss ranging from 8 – 55% in the study areas as well as the Abuja Municipal Area Council and other agencies of government responsible for residential property revenue collection. Reduction of property value and illegal occupancy are other major general effects of void on residential real estate investment. Void is therefore a major risk in residential real estate investment within the federal capital city of Abuja as it is capable of significantly affecting pecuniary returns and render the economic objective unachievable.

5.2 Recommendations

The study having discovered that void is a major threat to the viability of residential real estate investment in the federal capital city of Abuja, makes the following recommendations:

1. There should be downward review of rents and prices of residential properties in the FCT particularly within the FCC, such review should be based on rental and sale/purchase valuation.

2. Developers and Investors in residential real estate investment should never take risk of void for granted and therefore should endeavour to seek relevant professional advice before real estate decision are taken in order to minimise risk of void.

3. Due to the huge economic and other consequences of void in the FCT, government at various levels should take drastic measures such as imposition of taxes on void properties which will automatically compel landlords to reduce high rents/prices and in turns minimise the void rate.

4. NIESVand her members being the major professional player in the property market should advise the public on the implication of void on residential real estate investment which is caused majorly by high rent in the FCT.

5. Void period should not be considered as part of economic life of a property when carrying out real estate investment analysis / appraisal.

6. Properties that experience long term void in the market should be regarded economically as obsolete and required drastic intervention to be revived.

7. Effect of void on investment returns of different types of residential properties determined by this study is recommended as professional guide for real estate investment appraisal, valuation and bases for general investment returns comparism.

5.3 Contribution to Knowledge

The following are the contribution to knowledge from the study:

1. The study has established the average void period of different types of residential properties in the Federal Capital City of Abuja.

2. 3-bedroom flats have been established to be the most predominant void residential properties within the study area.

3. The rate of returns (yield) on different types of residential properties were determined within the Federal Capital City of Abuja.

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FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF ENVIRONMENTAL TECHNOLOGY

DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION

RESEARCH QUESTIONNAIRE

Dear Sir/Ma,

I am Emmanuel Oloruntayo, a postgraduate student of Estate Management and Valuation Department, currently undertaking research on "An evaluation of the effect of void on residential real estate investment in Abuja, Nigeria." The questionnaire is designed to assist me obtain data to complete the study.

Your sincere response in supplying the required data on void (vacant) properties under your management shall be appreciated, whilst I assure you that the information provided will be used for Academic purpose only and kept confidential.

Thank you.

Emmanuel Oloruntayo

(Researcher)

APPENDIX B

QUESTIONNAIRE

SECTION A

Kindly respond to the questions below by ticking at the correct alternative [   ] or box within the table as it applies to you. You are also required to comment where such spaces are provided for.

1. Name and address of Firm / Respondent…………………………………………………….

   …………………………………………………………………………………………………

2. Age of the respondent

    (a) Under 30years [   ] (b) 30– 40years [   ] (c) 41– 50 [   ] (d) Above 50 years [   ]

3. Highest educational qualification of the respondent

    (a) SSCE [   ] (b) ND/NCE [   ] (c) HND/B.Sc. [   ] (d) Masters [   ] Ph.D

4. Address   of   the   void   property   within   phase   1   –   5   of   FCT,

   Abuja…………………………….

5. What is the type of void / vacant residential property?

    (a) 1bedroom flat [   ] (b) 2bedroom flat [   ] (c) 3bedroom flat [   ] (d) 4bedroom flat

      [   ] (e) bungalow [   ] (f) Duplex [   ] (g) Others………………………………….

6. How long has the property been void / unoccupied in the last 10 years?

   ……………………

7. Is   the   property   up   for   sale   or   for   rent?

   ……………………………………………………….

8. How much is the Annual rent? …………………………………………………………...

9. What   is   the   market   value   of   the

property?...

SECTION B

10. What are the Factors responsible for the Void? Tick your answer under the following:
Strongly Disagree = 1, Disagree = 2, Slightly Disagree = 3, Neither Agreed or Disagree = 4, Slightly Agree =5, Agree = 6, Strongly Agree = 7

S/NO.	FACTORS	1	2	3	4	5	6	7
1	Economic downturn							
2	High rent							
3	No n use of professionals in property development							
4	Poor finishing							
5	Poor infrastructure and amenities							
6	Location							
7	Accessibility							
8	Excess supply rate							
9	Parking space							
10	Court case							
11	Security							
12	Construction defect							
13	Corruption							

11. What are the effects / disadvantages of void property? Tick your answer under the following:
Strongly Disagree = 1, Disagree = 2, Slightly Disagree = 3, Neither Agreed or Disagree = 4, Slightly Agree =5, Agree = 6, Strongly Agree = 7

S/NO.	EFFECTS OF VOID	1	2	3	4	5	6	7
1	Rental loss to landlords							
2	Illegal occupation by squatters							
3	Exposure to fire and other perils							
4	Hideout for criminals							
5	Quick depreciation							
6	Vandalism							
7	Loss of revenue to the government							
8	Reduce property value							
9	Reduce aesthetic of the neighbourhood							
10	**Increase risk to public health**							

APPENDIX C

VOID PERIOD OF RESIDENTIAL PROPERTIES IN THE STUDY AREA BETWEEN

2011 – 2021

Void Period of One Bedroom Flats

S/No. of Properties	Void period (Year)
1	1 year
2	6 months
3	8 months
4	1 year
5	1 year
6	7 months
7	1 year
8	5 months
9	1 year
10	1 year
11	4 months
12	1 year
13	1 year
14	6 months
15	5 months
16	1 year
17	1 year

Source: Field Survey, 2021

Void period of Two Bedroom Flats

S/No. of properties	Void period
1	2 years

2	3 years
3	2 years
4	4 years
5	2 years
6	4 years
7	2 years
8	3 years
9	3 years
10	2 years
11	1 year
12	4 years
13	3 years
14	2 years
15	2 years
16	2 years
17	2 years
18	1 year
19	2 years
20	4 years
21	3 years
22	3 years
23	2 years
24	2 years
25	2 years
26	2 years
27	1 year
28	3 years
29	3 years
30	2 years
31	4 years
32	2 years
33	1 year
34	2 years
35	2 years
36	3 years
37	3 years
38	2 years
39	2 years
40	3 years
41	4 years
42	3 years
43	3 years
44	2 years

45	2 years
46	2 years
47	3 years
48	3 years

Source: Field Survey, 2021

Void Period of Three Bedroom Flats

S/No. of properties	Void period
1	4 years
2	3 years
3	3 years
4	2 years
5	3 years
6	3 years
7	4 years
8	4 years
9	4 years
10	4 years
11	3 years
12	2 years
13	2 years
14	2 years
15	3 years
16	4 years
17	4 years
18	3 years
19	4 years
20	3 years
21	3 years
22	5 years
23	2 years
24	3 years
25	3 years
26	2 years
27	5 years
28	1 year
29	2 years
30	3 years
31	4 years

32	3 years
33	2 years
34	2 years
35	3 years
36	2 years
37	3 years
38	4 years
39	4 years
40	5 years
41	2 years
42	3 years
43	3 years
44	4 years
45	2 years
46	2 years
47	2 years
48	2 years
49	3 years
50	4 years
51	2 years
52	1 year
53	2 years
54	2 years
55	3 years
56	4 years
57	5 years
58	2 years
59	3 years
60	3 years
61	5 years
62	3 years
63	2 years
64	2 years
65	4 years
66	5 years
67	2 years
68	2 years

Source: Field Survey, 2021

Void Period of Four Bedroom Flats

S/No. of properties	Void period
1	4 years
2	5 years
3	3 years
4	3 years
5	4 years
6	4 years
7	1 year
8	5 years
9	3 years
10	3 years
11	2 years
12	3 years
13	4 years

Source: Field Survey, 2021

Void Period for Bungalows

S/No. of properties	Void period
1	4 years
2	4 years
3	5 years
4	5 years
5	6 years
6	7 years
7	5 years
8	3 years
9	3 years
10	2 years
11	2 years
12	1 year
13	2 years

14	3 years
15	2 years
16	3 years
17	3 years
18	1 year
19	2 years
20	2 years
21	6 years
22	5 years
23	4 years
24	2 years
25	3 years
26	3 years
27	2 years

Source: Field Survey, 2021

Void Period for Duplexes

S/No. of properties	Void period
1	5 years
2	6 years
3	6 years
4	7 years
5	3 years
6	3 years
7	2 years
8	4 years
9	3 years
10	2 years
11	1 years
12	2 years
13	3 years
14	4 years
15	5 years
16	6 years
17	7 years
18	6 years
19	2 years
20	3 years
21	5 years
22	5 years
23	4 years

24	3 years
25	2 years
26	1 year
27	3 years
28	4 years
29	5 years
30	6 years
31	7 years
32	8 years
33	2 years
34	1 year
35	1 year
36	2 years
37	3 years
38	4 years
39	4 years
40	6 years
41	5 years

Source: Field Survey, 2021

Average Void Period of Mansions / townhouses

S/No. of properties	Void period
1	5 years
2	5 years
3	5 years
4	6 years
5	7 years
6	8 years
7	5 years
8	4 years
9	6 years
10	7 years
11	4 years
12	4 years
13	5 years

Source: Field Survey, 2021

RENT AND CAPITAL VALUE OF THE VOID RESIDENTIAL PROPERTIES SAMPLED IN THE STUDY AREA

Rent and Capital Value of One Bedroom Flats

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	1,500,000.00	30,000,000.00
2	1,200,000.00	24,000,000.00
3	1,300,000.00	26,000,000.00
4	1,200,000.00	24,000,000.00
5	1,400,000.00	28,000,000.00
6	1,300,000.00	26,000,000.00
7	1,000,000.00	20,000,000.00
8	1,100,000.00	23,000,000.00
9	1,100,000.00	23,000,000.00
10	1,200,000.00	24,000,000.00
11	1,400,000.00	28,000,000.00
12	1,500,000.00	30,000,000.00
13	1,300,000.00	26,000,000.00
14	1,200,000.00	24,000,000.00
15	1,200,000.00	24,000,000.00
16	1,400,000.00	28,000,000.00
17	1,500,000.00	30,000,000.00
TOTAL	**21,800,000.00**	**438,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Two Bedroom Flats

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	2,000,000.00	45,000,000.00
2	1,800,000.00	40,000,000.00
3	1,900,000.00	42,000,000.00

4	1,600,000.00	37,000,000.00
5	1,500,000.00	34,000,000.00
6	1,700,000.00	39,000,000.00
7	1,400,000.00	32,000,000.00
8	1,300,000.00	30,000,000.00
9	1,600,000.00	37,000,000.00
10	1,500,000.00	34,000,000.00
11	1,800,000.00	40,000,000.00
12	1,600,000.00	37,000,000.00
13	1,700,000.00	39,000,000.00
14	1,900,000.00	42,000,000.00
15	1,500,000.00	34,000,000.00
16	2,000,000.00	45,000,000.00
17	1,400,000.00	32,000,000.00
18	1,500,000.00	34,000,000.00
19	1,300,000.00	30,000,000.00
20	1,600,000.00	37,000,000.00
21	1,500,000.00	34,000,000.00
22	1,500,000.00	34,000,000.00
23	1,700,000.00	39,000,000.00
24	1,600,000.00	37,000,000.00
25	1,800,000.00	40,000,000.00
26	1,300,000.00	30,000,000.00
27	1,400,000.00	32,000,000.00
28	1,900,000.00	42,000,000.00
29	2,000,000.00	45,000,000.00
30	1,600,000.00	37,000,000.00
31	1,800,000.00	40,000,000.00
32	1,700,000.00	39,000,000.00
33	1,600,000.00	37,000,000.00
34	1,500,000.00	34,000,000.00
35	1,400,000.00	32,000,000.00
36	1,300,000.00	30,000,000.00
37	1,900,000.00	42,000,000.00
38	1,600,000.00	37,000,000.00
39	1,500,000.00	34,000,000.00
40	2,000,000.00	45,000,000.00
41	1,700,000.00	39,000,000.00
42	1,300,000.00	30,000,000.00
43	1,400,000.00	32,000,000.00
44	1,900,000.00	42,000,000.00

45	1,600,000.00	37,000,000.00
46	1,000,000.00	34,000,000.00
47	2,000,000.00	45,000,000.00
48	1,500,000.00	34,000,000.00
TOTAL	**77,600,000.00**	**1,773,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Three Bedroom Flats

S/NO. OF PROPERTY	RENT (N)	CAPITAL VALUE (N)
1	2,500,000.00	55,000,000.00
2	2,300,000.00	50,000,000.00
3	2,200,000.00	47,000,000.00
4	2,000,000.00	45,000,000.00
5	1,800,000.00	40,000,000.00
6	2,400,000.00	52,000,000.00
7	2,100,000.00	42,000,000.00
8	2,100,000.00	42,000,000.00
9	2,400,000.00	52,000,000.00
10	1,800,000.00	40,000,000.00
11	2,000,000.00	45,000,000.00
12	2,200,000.00	47,000,000.00
13	2,300,000.00	50,000,000.00
14	2,500,000.00	55,000,000.00
15	2,300,000.00	50,000,000.00
16	2,200,000.00	47,000,000.00
17	2,000,000.00	45,000,000.00
18	1,800,000.00	40,000,000.00
19	2,400,000.00	52,000,000.00
20	2,100,000.00	42,000,000.00
21	2,500,000.00	55,000,000.00
22	2,200,000.00	47,000,000.00
23	2,000,000.00	45,000,000.00
24	1,800,000.00	40,000,000.00
25	2,400,000.00	52,000,000.00
26	2,100,000.00	42,000,000.00
27	2,500,000.00	54,000,000.00
28	2,300,000.00	50,000,000.00
29	2,000,000.00	45,000,000.00
30	1,800,000.00	40,000,000.00

31	2,400,000.00	52,000,000.00
32	2,500,000.00	55,000,000.00
33	2,200,000.00	47,000,000.00
34	2,100,000.00	42,000,000.00
35	1,800,000.00	40,000,000.00
36	2,400,000.00	52,000,000.00
37	2,100,000.00	42,000,000.00
38	2,500,000.00	55,000,000.00
39	2,300,000.00	50,000,000.00
40	2,200,000.00	47,000,000.00
41	2,000,000.00	45,000,000.00
42	2,400,000.00	52,000,000.00
43	2,100,000.00	42,000,000.00
44	2,200,000.00	47,000,000.00
45	2,300,000.00	50,000,000.00
46	2,400,000.00	52,000,000.00
47	2,500,000.00	55,000,000.00
48	2,000,000.00	45,000,000.00
49	2,500,000.00	55,000,000.00
50	2,300,000.00	50,000,000.00
51	2,200,000.00	47,000,000.00
52	2,000,000.00	45,000,000.00
53	1,800,000.00	40,000,000.00
54	2,400,000.00	52,000,000.00
55	2500,000.0,1	42,000,000.00
56	2,300,000.00	50,000,000.00
57	2,200,000.00	47,000,000.00
58	2,400,000.00	52,000,000.00
59	2,500,000.00	55,000,000.00
60	1,800,000.00	40,000,000.00
61	2,000,000.00	45,000,000.00
62	2,100,000.00	42,000,000.00
63	2,200,000.00	47,000,000.00
64	2,100,000.00	42,000,000.00
65	2,000,000.00	45,000,000.00
66	2,400,000.00	52,000,000.00
67	2,300,000.00	50,000,000.00
68	2,500,000.00	55,000,000.00
TOTAL	**149,500,000.00**	**3,231,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Four Bedroom Flats

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	3,500,000.00	70,000,000.00
2	3,300,000.00	65,000,000.00
3	3,200,000.00	66,000,000.00
4	2,700,000.00	58,000,000.00
5	2,800,000.00	60,000,000.00
6	2,600,000.00	55,000,000.00
7	3,000,000.00	65,000,000.00
8	3,200,000.00	66,000,000.00
9	2,700,000.00	58,000,000.00
10	2,800,000.00	60,000,000.00
11	2,600,000.00	55,000,000.00
12	3,500,000.00	70,000,000.00
13	3,200,000.00	66,000,000.00
TOTAL	**38,800,000.00**	**814,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Bungalows

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	4,000,000.00	90,000,000.00
2	4,500,000.00	100,000,000.00
3	3,500,000.00	80,000,000.00
4	3,800,000.00	85,000,000.00
5	4,200,000.00	93,000,000.00
6	4,100,000.00	92,000,000.00
7	4,300,000.00	95,000,000.00
8	4,300,000.00	95,000,000.00
9	4,100,000.00	92,000,000.00
10	4,200,000.00	93,000,000.00
11	3,800,000.00	85,000,000.00

12	3,500,000.00	80,000,000.00
13	4,000,000.00	100,000,000.00
14	4,000,000.00	90,000,000.00
15	4,100,000.00	92,000,000.00
16	4,200,000.00	93,000,000.00
17	3,800,000.00	85,000,000.00
18	3,500,000.00	80,000,000.00
19	4,500,000.00	100,000,000.00
20	4,000,000.00	90,000,000.00
21	4,300,000.00	95,000,000.00
22	4,200,000.00	93,000,000.00
23	3,800,000.00	85,000,000.00
24	3,500,000.00	80,000,000.00
25	4,500,000.00	100,000,000.00
26	4,000,000.00	90,000,000.00
27	4,200,000.00	93,000,000.00
TOTAL	**109,400,000.00**	**2,446,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Duplexes

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	15,000,000.00	350,000,000.00
2	12,000,000.00	320,000,000.00
3	14,000,000.00	340,000,000.00
4	10,000,000.00	250,000,000.00
5	13,000,000.00	320,000,000.00
6	20,000,000.00	450,000,000.00
7	11,000,000.00	300,000,000.00
8	16,000,000.00	380,000,000.00
9	18,000,000.00	430,000,000.00
10	10,000,000.00	250,000,000.00
11	14,000,000.00	340,000,000.00
12	12,000,000.00	320,000,000.00
13	15,000,000.00	350,000,000.00
14	13,000,000.00	320,000,000.00
15	11,000,000.00	300,000,000.00
16	20,000,000.00	450,000,000.00

17	16,000,000.00	380,000,000.00
18	18,000,000.00	430,000,000.00
19	13,000,000.00	320,000,000.00
20	20,000,000.00	450,000,000.00
21	11,000,000.00	300,000,000.00
22	16,000,000.00	380,000,000.00
23	18,000,000.00	430,000,000.00
24	10,000,000.00	250,000,000.00
25	14,000,000.00	340,000,000.00
26	12,000,000.00	230,000,000.00
27	15,000,000.00	350,000,000.00
28	20,000,000.00	450,000,000.00
29	14,000,000.00	340,000,000.00
30	15,000,000.00	350,000,000.00
31	12,000,000.00	320,000,000.00
32	13,000,000.00	320,000,000.00
33	16,000,000.00	380,000,000.00
34	18,000,000.00	430,000,000.00
35	11,000,000.00	300,000,000.00
36	10,000,000.00	250,000,000.00
37	15,000,000.00	350,000,000.00
38	12,000,000.00	320,000,000.00
39	14,000,000.00	340,000,000.00
40	10,000,000.00	250,000,000.00
41	13,000,000.00	320,000,000.00
TOTAL	**580,000,000.00**	**14,050,000,000.00**

Source: Field Survey, 2021

Rent and Capital Value of Mansions and townhouses

S/NO. OF PROPERTIES	RENT (N)	CAPITAL VALUE (N)
1	30,000,000.00	700,000,000.00
2	28,000,000.00	680,000,000.00
3	35,000,000.00	750,000,000.00
4	25,000,000.00	600,000,000.00
5	22,000,000.00	550,000,000.00
6	23,000,000.00	580,000,000.00
7	40,000,000.00	900,000,000.00
8	38,000,000.00	850,000,000.00
9	36,000,000.00	800,000,000.00

10	35,000,000.00	750,000,000.00
11	34,000,000.00	750,000,000.00
12	33,000,000.00	720,000,000.00
13	30,000,000.00	700,000,000.00
TOTAL	**409,000,000.00**	**9,330,000,000.00**

Source: Field Survey, 2021

APPENDIX E

EFFECT OF VOID ON RESIDENTIAL REAL ESTATE INVESTMENT RETURNS IN THE STUDY AREA BETWEEN 2011 - 2021

1 Bedroom flats

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
15	1 year	1.5
12	6 months	0.6
13	8 months	0.91
12	1 year	1.2
14	1 year	1.4
13	7 months	0.78
10	1 year	1
11	5 months	0.44
11	1 year	1.1
12	1 year	1.2
14	4 months	0.42
15	1 year	1.5
13	1 year	1.3
12	6 months	0.6
12	5 months	0.48
14	1 year	1.4

15	1 year	1.5
218		**17.33**

2 Bedroom Flats

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
20	2	4
18	3	5.4
19	2	3.8
16	4	6.4
15	2	3
17	4	6.8
14	2	2.8
13	3	3.9
16	3	4.8
15	2	3
18	1	1.8
16	4	6.4
17	3	5.1
19	2	3.8
15	2	3
20	2	4

14	2	2.8
15	1	1.5
13	2	2.6
16	4	6.4
15	3	4.5
15	3	4.5
17	2	3.4
16	2	3.2
18	2	3.6
13	2	2.6
14	1	1.4
19	3	5.7
20	3	6
16	2	3.2
18	4	7.2
17	2	3.4
16	1	1.6
15	2	3
14	2	2.8
13	3	3.9
19	3	5.7
16	2	3.2
15	2	3

20	3	6
17	4	6.8
13	3	3.9
14	3	4.2
19	2	3.8
16	2	3.2
15	2	3
20	3	6
15	3	4.5
781		**194.6**

Source: Field Survey, 2021

3 Bedroom Flats

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
25	4	10
23	3	6.9
22	3	6.6
20	2	4
18	3	5.4
24	3	7.2
21	4	8.4
21	4	8.4
24	4	9.6
18	4	7.2

20	3	6
22	2	4.4
23	2	4.6
25	2	5
23	3	6.9
22	4	8.8
20	4	8
18	3	5.4
24	4	9.6
21	3	6.3
25	3	7.5
22	5	11
20	2	4
18	3	5.4
24	3	7.2
21	2	4.2
25	5	12.5
23	1	2.3
20	2	4
18	3	5.4
24	4	9.6
25	3	7.5
22	2	4.4

21	2	4.2
18	3	5.4
24	2	4.8
21	3	6.3
25	4	10
23	4	9.2
22	5	11
20	2	4
24	3	7.2
21	3	6.3
22	4	8.8
23	2	4.6
24	2	4.8
25	2	5
20	2	4
25	3	7.5
23	4	9.2
22	2	4.4
20	1	2
18	2	3.6
24	2	4.8
21	3	6.3
23	4	9.2

22	5	11
24	2	4.8
25	3	7.5
18	3	5.4
20	5	10
21	3	6.3
22	2	4.4
21	2	4.2
20	4	8
24	5	12
23	2	4.6
2.5	2	5
1495		**449.5**

Source: Field Survey, 2021

4 Bedroom Flats

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
35	4	14
30	5	15
32	3	9.6
27	3	8.1
28	4	11.2
26	4	10.4
30	1	3
32	5	16
27	3	8.1

28	3	8.4
26	2	5.2
35	3	10.5
32	4	12.8
388		**132.3**

Source: Field Survey, 2021

Bungalow

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
40	4	16
45	4	18
35	5	17.5
38	5	19
42	6	25.2
41	7	28.7
43	5	21.5
43	3	12.9
41	3	12.3
42	2	8.4
38	2	7.6
35	1	3.5
45	2	9
40	3	12

41	2	8.2
42	3	12.6
38	3	11.4
35	1	3.5
45	2	9
40	2	8
43	6	25.8
42	5	21
38	4	15.2
35	2	7
45	3	13.5
40	3	12
42	2	8.4
1094		**367.2**

Source: Field Survey, 2021

Duplex

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
15	5	7.5
12	6	7.2
14	6	8.4
10	7	7
13	3	3.9
20	3	6
11	2	2.2

16	4	6.4
18	3	5.4
10	2	2
14	1	1.4
12	2	2.4
15	3	4.5
13	4	5.2
11	5	5.5
20	6	12
16	7	11.2
18	6	10.8
13	2	2.6
20	3	6
11	5	5.5
16	5	8
18	4	7.2
10	3	3
14	2	2.8
12	1	1.2
15	3	4.5
20	4	8
14	5	7
15	6	9

12	7	8.4
13	8	10.4
16	2	3.2
18	1	1.8
11	1	1.1
10	2	2
15	3	4.5
12	4	4.8
14	4	5.6
10	6	6
13	5	6.5
580		**228.1**

Source: Field Survey, 2021

Others (Mansion / Townhouse)

Rent for 10years (Millions)	Void period (Years)	Rent loss due to void (million)
30	5	15
28	5	14
35	5	17.5
25	6	15
22	7	15.4
23	8	18.4
40	5	20

38	4	15.2
36	6	21.6
35	7	24.5
34	4	13.6
33	4	13.2
30	5	15
409		**218.4**

Source: Field Survey, 2021

APPENDIX F

REGRESSION ANALYSIS

Effect of Void on Investment Returns of 1Bedroom Flat

Regression Analysis of One Bedroom Flats

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.531728
R Square	0.282735
Adjusted R Square	0.234917
Standard Error	0.348541
Observations	17

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.718287	0.718287	5.912772	0.028035
Residual	15	1.822208	0.121481		
Total	16	2.540494			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%

Intercept	-0.78023	0.74491	-1.04741	0.311496	-2.36796	0.807513	-2.36796	0.807513
X Variable 1	0.140339	0.057714	2.431619	0.028035	0.017324	0.263353	0.017324	0.263353

Source: Data Analysis, 2021

Linear regression model

$$Y = a + bx$$

$$Y = 0.1403 - 0.7802x$$

Effect of Void on Investment Returns of 2Bedroom Flat

Regression Analysis of Two Bedrooms Flats

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.298754
R Square	0.089254
Adjusted R Square	0.075455
Standard Error	2.32021
Observations	68

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	34.8201	34.8201	6.46808	0.013334
Residual	66	355.3027	5.383374		
Total	67	390.1228			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.72498	1.941398	0.888525	0.377485	-2.15115	5.601106	2.15115	5.601106
X Variable 1	0.225604	0.088707	2.54324	0.01333	0.048494	0.40271	0.04849	0.40271

	2	4		3	4	3

Source: Data Analysis, 2021

The following regression equation was obtained

$$Y = 1.7258 + 0.2256x$$

Effect of Void on Investment Returns of 3 Bedroom Flat

Regression Analysis of Three Bedrooms Flats

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.975304
R Square	0.951219
Adjusted R Square	-0.00897
Standard Error	9.151152
Observations	60

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	39.80557	39.80557	0.475327	0.493296
Residual	58	4857.128	83.74358		
Total	59	4896.933			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	31.28165	3.696684	8.462083	1.03E-11	23.88193	38.68137	23.88193	38.68137
X Variable 1	-0.83275	1.207869	-0.68944	0.493296	-3.25057	1.58506	-3.25057	1.58506

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 31.2816 - 0.8327x$$

Effect of Void on Investment Returns of 4Bedroom Flat

Regression Analysis of Four Bedrooms Flats

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.202223
R Square	0.040894
Adjusted R Square	-0.0463
Standard Error	8.793867
Observations	13

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	36.27002	36.27002	0.469016	0.507614
Residual	11	850.6531	77.3321		
Total	12	886.9231			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	45.32653	8.044032	5.634802	0.000152	27.62174	63.03133	27.62174	63.03133
X Variable 1	-1.55102	2.264767	-0.68485	0.507614	-6.53574	3.433698	-6.53574	3.433698

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 45.3265 - 1.5510x$$

Effect of Void on Investment Returns of Bungalow

Regression Analysis of Bungalows

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.084544
R Square	0.007148
Adjusted R Square	-0.04801
Standard Error	9.171363
Observations	20

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	10.89976	10.89976	0.129583	0.723054
Residual	18	1514.05	84.1139		
Total	19	1524.95			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	24.44155	4.623188	5.286729	5.01E-05	14.72859	34.1545	14.72859	34.1545
X Variable 1	-0.45894	1.274908	-0.35998	0.723054	-3.13742	2.219544	-3.13742	2.219544

Source: Data Analysis, 2021

For the above table, the equation would be approximately:

$$Y = 24.441 - 0.4589x$$

Effect of Void on Investment Returns of Duplex

Regression Analysis of Duplexes

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.292205
R Square	0.805384
Adjusted R Square	0.059978
Standard Error	41.31605
Observations	38

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	5736.9	5736.9	3.360777	0.000750
Residual	36	61452.57	1707.016		
Total	37	67189.47			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	55.84784	15.03787	3.713813	0.000689	25.34962	86.34606	25.34962	86.34606
X Variable 1	6.423164	3.503718	1.833242	0.000750	-0.68271	13.52903	-0.68271	13.52903

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 55.847 + 6.4231x$$

Effect of Void on Investment Returns of Mansion and Townhouse

Regression Analysis of Mansion and Townhouse

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.138044
R Square	0.919056
Adjusted R Square	-0.07012
Standard Error	73.61522
Observations	13

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	1158.031	1158.031	0.21369	0.652899
Residual	11	59611.2	5419.2		
Total	12	60769.23			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	293.92	93.92794	3.129207	0.009591	87.186	500.654	87.186	500.654
X Variable 1	-7.76	16.78685	-0.46227	0.652899	-44.7076	29.18761	-44.7076	29.18761

Source: Data Analysis, 2021

The following regression equation was obtained.

$$Y = 293.92 - 7.76x$$

$$Y = 293.92 - 7.76x$$